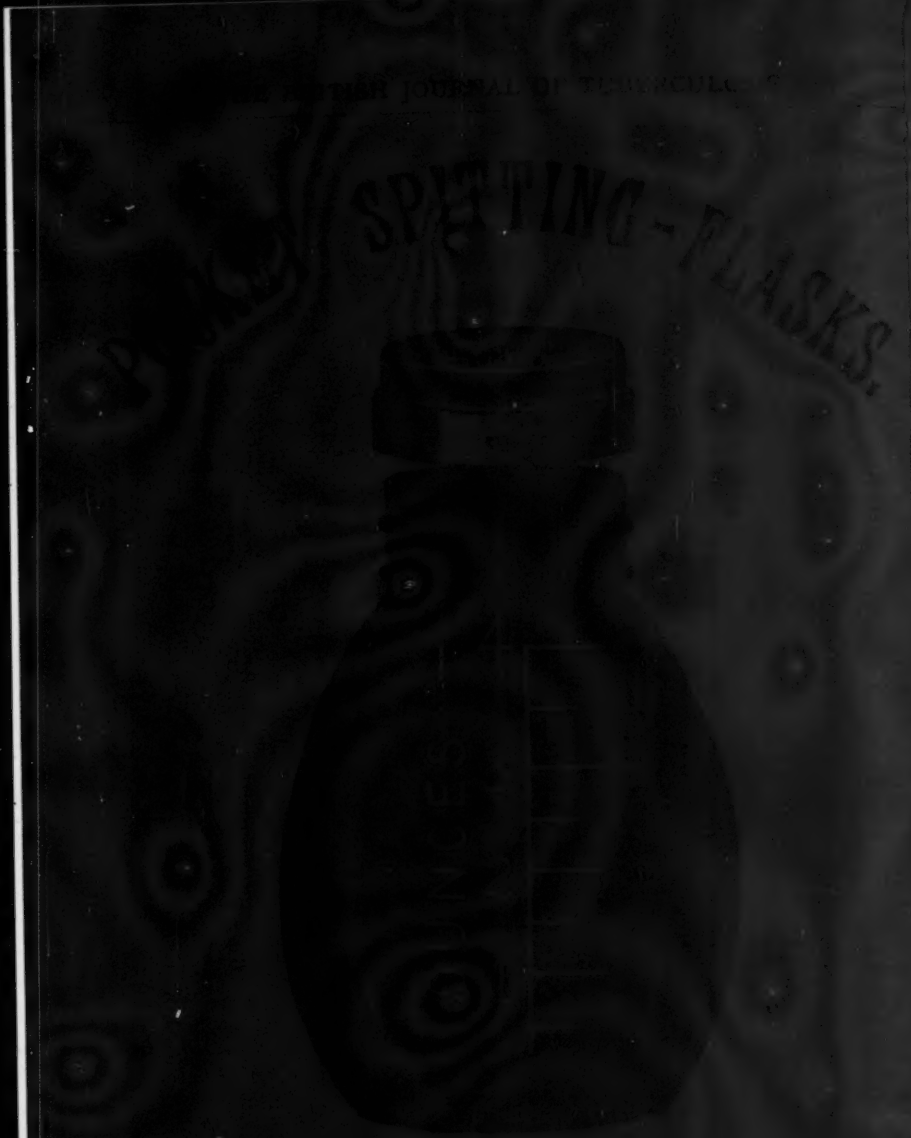
SPITTING-FLASKS.

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ORIGINAL ARTICLES.

THE RÔLE OF GLASS IN RELATION TO LIGHT TREATMENT.

By F. E. LAMPLOUGH, M.A.

Glass may be said to occupy a place of importance second only to that of metals in its influence on the comfort and well-being of mankind. Without glass for windows in walls and roofs of houses and workrooms the development of modern civilization could scarcely have taken place, certainly not in countries having climates at all similar to ours, apart from the vital importance of instruments of optical glass in the evolution of most of the sciences.

Until the last few years all efforts in the manufacture of ordinary window-glass have been devoted to the production at minimum cost of large sheets without flaw or blemish, and free from visible colour. Whereas in the Middle Ages it was only possible to obtain pieces of glass a few square inches in area, of a greenish colour and heavily marked with striæ, bubbles, and other defects which distorted vision, it is now possible to produce panes hundreds of times larger in area, almost colourless, and of such perfect surface and freedom from faults that vision through the glass, even with optical magnification, is undisturbed throughout the area of the sheet.

The necessities and luxuries of advancing civilization have compelled the manufacturer to produce other compositions of glass than the commonest type which served for windows, bottles, vessels, and so forth. Lead or "flint" glass came into use for table-ware owing to the greater brilliancy and sparkle of prismatic colours conferred by higher index of refraction and greater dispersion; this glass, coupled with ordinary glass, enabled More Hall and Dolland to give achromatism to the refracting telescope, and so produce the forerunner of all the wonderful optical instruments which are so vital in medical and physical sciences, in photography, and in the terrible art of war.

Apart from the large number of different compositions of glass which have been produced to meet the exacting demands of opticians, glasses having special chemical or physical resistance have been developed to fulfil the requirements of laboratory workers and illumin-

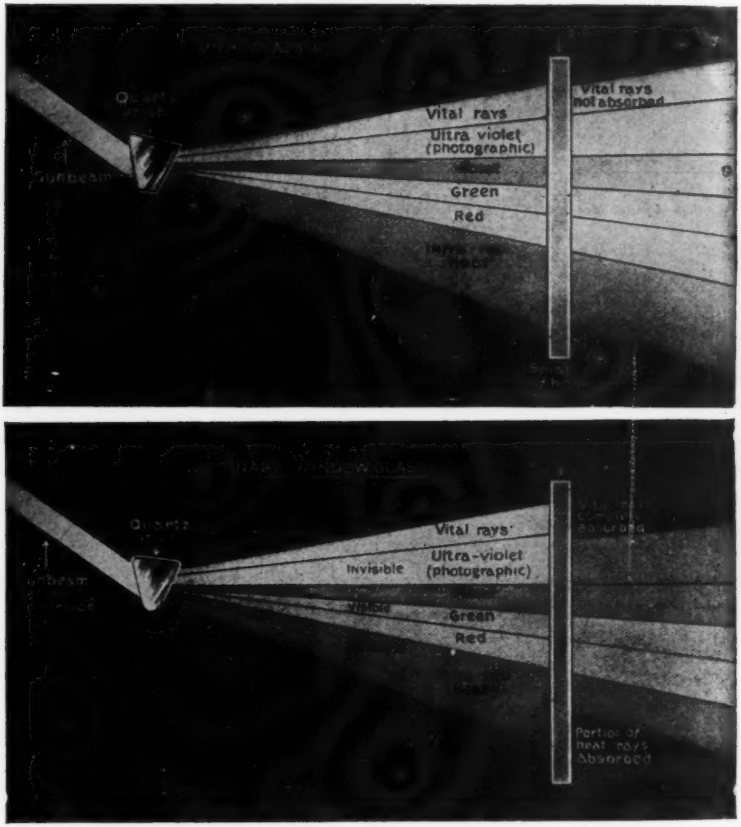


FIG. I.—DISPERSION OF SUNLIGHT BY PRISM.
Diagrammatic indication of the transparency of Vita glass and opacity of ordinary glass to the beneficial range of ultrā-violet rays of the sun's spectrum.

ating engineers. Whilst the production of window-glass which is as free as possible from colour, or which is finely coloured for decorative work, has received continual attention, no efforts have been made until very recently to alter its composition with a view to giving it special

transparency or opacity to the invisible radiations of daylight beyond the red and violet end of the sun's spectrum.

In 1924, as a result of the consideration of the physical basis of heliotherapy, and the fact that ordinary window-glass obstructed almost the whole of that particular solar radiation which had come to be recognized as being of special biological importance, the writer took up the question as to how far it might be possible to produce a window-glass of reasonable price which would be transparent to the beneficial rays. The scientific research involved was carried out by him with much encouragement from Professor Leonard Hill, and also from the authorities of the London Zoo, Dr. C. W. Saleeby, and others, and

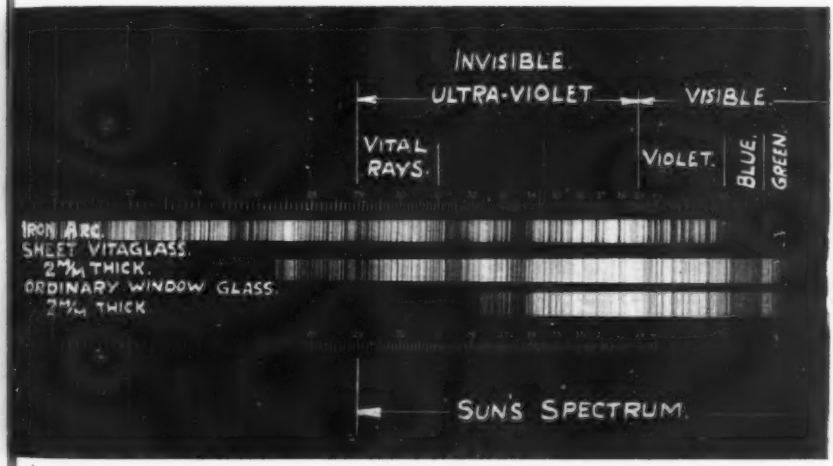


FIG. 2.—SPECTRUM PHOTOGRAPH.

A is the spectrum of an iron arc without screen. B is the spectrum of an iron arc with Vita screen showing beneficial rays transmitted. C is the spectrum of an iron arc with ordinary glass, showing these rays completely absorbed.

early in 1925 the first full-scale melting was made of a new window-glass (designated "Vita") specially pervious to the therapeutic rays. The scientific principles underlying the production of the glass were established, and later research has improved still further the quality of the glass.

Optical Properties of the New Window-Glass.

In Fig. 1 is shown diagrammatically the manner in which sunlight is split up when the rays making up the solar radiation are dispersed by a quartz prism. It will be seen that the visible and ultra-violet rays pass through a sheet of Vita glass, but that ordinary window-glass obstructs all the beneficial ultra-violet rays, though much of the ultra-

violet radiation, which is only a little beyond the visible spectrum, is transmitted. The transparency of the glass is more accurately indicated by a spectrum photograph and by curves showing the transmission at different wave-lengths. In the spectrograph a comparison is given of the permeability of ordinary glass and Vita glass, the iron arc being used as a laboratory source of radiation for investigations extending beyond the limits of the sun's ultra-violet spectrum.

Radiation is characterized and defined in terms of wave-length. In the case of light, wave-lengths are usually expressed in terms of "Angstrom Units," denoted by "A.U.," one such unit being one ten-millionth of a millimetre. The eye is sensitive to radiation of a limited range of wave-lengths, the extreme visible violet being about 3,900 A.U., and the extreme visible red about 7,600 A.U.

The sun's radiation corresponds approximately to that of a good radiator incandescent at 6,000° C., and its maximum intensity is in the visible spectrum, the strength falling off rapidly in the ultra-violet and infra-red regions. The limit of the ultra-violet rays which reach the earth's surface is, however, determined by atmospheric absorption. Under ideal conditions of high altitude, and when the sun is high in a cloudless sky, the ultra-violet spectrum reaches and terminates abruptly at 2,912 A.U., but with the ordinary atmospheric conditions of our climate it would be more accurate to speak of the spectrum as ending at 3,000 A.U.

It is generally now recognized that the radiation which has special biological value extends from wave-length about 3,200 A.U. downwards. It will therefore be seen that the beneficial *natural* ultra-violet rays which we experience in our climate are for the most part included in the wave-length range from 3,200 to 3,000 A.U., with lower wave-lengths under specially favourable conditions. Artificial sources such as the tungsten arc or mercury lamp give radiation extending far below 3,000 A.U. The limit beyond which these rays cease to have important biological value is not known with certainty, but is possibly about 2,700 A.U.

The above data enable us to interpret the spectrum photograph (Fig. 2) and the transmission curves (Fig. 3). [In these the range of wave-lengths from 2,900 to 3,100 A.U. has been specially marked as comprising the beneficial rays of sunlight, but the range from 3,000 to 3,200 A.U. would be more correct for our climate.]

In the diagram giving actual transmission data for Vita glass and ordinary glass, the values for Vita glass were obtained by the National Physical Laboratory. There is a nearly constant loss of about 8 per cent., due simply to reflection from the two surfaces of the glass, and this inevitable loss prevents the transmission approaching 100 per cent. It will be seen that the average transmission of the Vita glass through-

out the important range 3,000 to 3,200 A.U. is nearly 80 per cent. for the thickness of glass mentioned. On the other hand, for the sample of ordinary glass the transmission falls to vanishing-point at 3,200 A.U., the beginning of the vital range, the beneficial rays being completely obstructed.

The idea that glass having special transparency to ultra-violet radiation must be kept scrupulously free from dirt by frequent cleaning

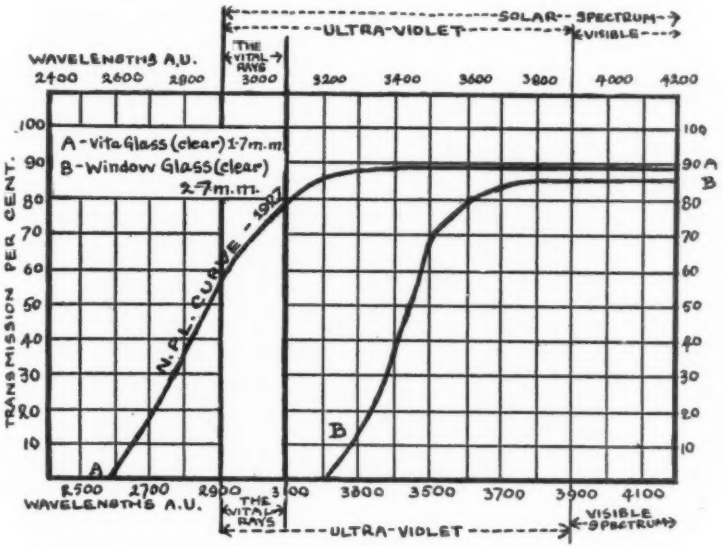


FIG. 3.—TRANSMISSION CURVES FOR VITA AND ORDINARY GLASS.

These show quantitatively the high percentage transmission of the curative rays by Vita glass, and the complete opacity of ordinary glass to the rays.

has by some means obtained wide credence. This, however, is quite incorrect, as is shown both by experience and by the spectro-photometer. Naturally, if so much dirt were allowed to collect on the glass that one-third, say, of the visible light was obstructed, the ultra-violet radiation would be correspondingly reduced, but not in *greater* proportion. The Vita glass used for roofs in the London Zoological Gardens is washed only by the rain, yet the good effects observed two and a half years ago still continue to be maintained. During the very successful test at the Smethwick Council School, in the heart of an industrial district, the windows were cleaned only four times a year as usual.

Biological Tests of Vita Glass.

When Vita glass was first introduced, it may be confessed that the writer felt an element of doubt as to the strict accuracy of the conclusion that the beneficial ultra-violet radiation of sunlight was comprised within such a narrow band of wave-lengths. All evidence derived from the use of the glass has, however, gone to confirm the conclusions of the physiologists, and to prove that the rays affecting growth, and retarding or preventing rickets, are entirely blocked out by ordinary glass, but admitted by Vita glass.

Professor Leonard Hill proved by tests with young rats fed on defective diet that rickets was prevented by a short daily exposure to the mercury vapour lamp through a screen of the special glass, but that

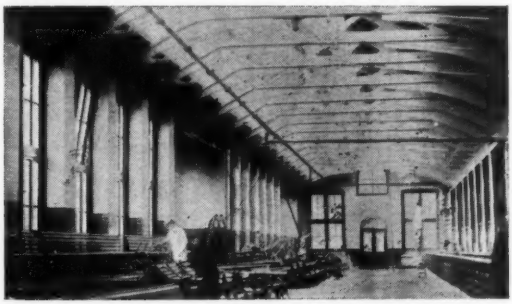


FIG. 4.—LION HOUSE, ZOOLOGICAL GARDENS.

Reglazed with Vita glass, 1925. Cages for the animals are shown on the extreme right.

a sheet of ordinary window-glass completely prevented any beneficial effect. Infusoria in quartz cell were killed nearly as quickly by sunlight with Vita glass screen as with a quartz screen, though ordinary glass gave complete protection; erythema and pigmentation of the skin were produced readily with a screen of the new glass, but only very slowly with thin ordinary glass.

On the other hand, if an artificial source of ultra-violet rays, such as the mercury vapour lamp, is used for these tests, Vita glass only transmits a portion of the curative ultra-violet rays, because much of the radiation is of short wave-lengths not present in sunlight. With a screen of the new glass, these rays of short wave-length are cut off and the radiation of a lamp so screened then more closely resembles sunlight, but is less powerful. Thus, with a Vita glass screen it is necessary to increase exposure about three times, using a mercury lamp, to obtain equal erythema, though with the longer wave-length of

the curative rays in sunlight, the screen has a comparatively small effect in increasing exposures.

Following a successful test of the new glass early in 1925, in an experimental monkey house at the London Zoological Gardens, the Lion House was reglazed with the glass later in the year. Its value was so evident in the improved condition of the animals and freedom from illness that the following year the new Reptile House was completely filled with the glass, and in 1927 the new Monkey House was similarly equipped, nearly 15,000 square feet in all being used.

In June, 1925, the first scientific biological test of the effect of the glass on the health of human beings was carried out under the control

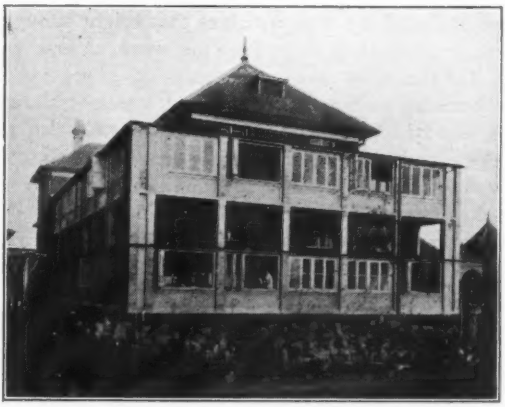


FIG. 5.—ROYAL VICTORIA HOSPITAL, BOSCOMBE.
One of the first two hospitals to be fitted with the new glass (1925). A large extension has recently been similarly equipped.

of the School Medical Officer of Smethwick Borough Council in one of the Council Schools. Every care was taken to obtain results as strictly comparable and reliable as possible, and the weights, heights and hæmoglobin contents of the blood were measured for two classes of thirty boys each, who were taught during nine months in classrooms glazed with ordinary glass and the new glass respectively. Even in the unfavourable industrial locality of Smethwick the biological value of the rays to which the new glass is specially transparent asserted itself, and the figures for all these data were considerably better in the case of the "Vita" class (Smethwick Borough Council Report, 1926).

The Council on Physical Therapy of the American Medical Association[1] carried out a careful series of tests near Boston during January and early February, 1927, to determine the biological value of the

[1] See *Journal of the American Medical Association*, May 14, 1927.

transmission of the extreme ultra-violet rays of the sun's spectrum. In this research different groups of young chicks, fed on defective diet, were kept in separate compartments, and received light as follows: (1) Sunlight through ordinary glass. (2) Light fifteen minutes daily from a mercury vapour lamp at 1 metre distance. (3) Diffuse light of the laboratory through ordinary glass. (4) Sunlight through Vita glass. The chicks were weighed at the commencement (twenty-one days after hatching), and at intervals throughout the test, the development of "leg weakness" being shown by appearance and by X-ray diagnosis. It was found that all the chicks of groups (1) and (3) developed rickets; after 40 days the weight had increased 2·39 and 2·43 times respectively. In other words, so completely were the anti-rachitic rays excluded by ordinary glass that bright sunlight was just as ineffective in preventing rickets as the weak, diffuse light of the laboratory. On the other hand, the chicks of group (3) were completely free from leg weakness, and showed a weight increase of 4·18 times, whilst out of fourteen chicks in group (4) only two showed any signs of rickets, and the weight increase ratio was 3·96. The results of the above experiments have been widely confirmed by the experiences of poultry farmers in the use of the glass.

The prevention and cure of rickets is a subject which can be readily and quickly investigated on a small scale, results being obtainable with rats in three weeks or chicks in five weeks, but researches on the light cure for surgical tuberculosis are more difficult to carry out under proper scientific conditions. It is not possible to refer to any controlled tests with the glass, for no one would desire that some sufferers should be used as controls, and placed under conditions which excluded the light that is generally recognized as being of supreme importance in the cure of this complaint.

However, inferentially from a knowledge of the optical properties of the glass, we may conclude with certainty that where glass has to be used in connection with the housing or treatment of patients, it is highly desirable to employ media which transmit the furthest ultra-violet rays of natural light. Sir Henry Gauvain has specially recommended the use of Vita glass for sliding roofs of sun balconies, and the glass is in use at the Lord Mayor Treloar Hospital at Alton, and its Branch at Hayling Island.[1]

Whilst ultra-violet treatment in conjunction with good nursing is rightly regarded as the sovereign remedy for *surgical* tuberculosis, on the other hand the pulmonary disease furnishes the most important of the very few conditions in which great discrimination is required in determining whether this remedial treatment may suitably be employed.

It is not within the writer's province to trespass on such contro-

[1] See *Lancet*, April 9, 1927, p. 754.

versial ground. It may, however, be said that where exposure to the ultra-violet rays of natural light is considered desirable, whether direct sunlight is used or the comparative coolness of the radiation from the north sky, a glass transparent to such rays enables treatment to be given in open or closed wards without the great inconveniences associated with exposure carried out entirely in the open.

TUBERCULOSIS AND THE SAILOR.

By JOHN E. WOOD,

M.R.C.S., L.R.C.P.,

Medical Superintendent King George's Sanatorium for Sailors, Bramshott Place, Liphook, Hants.

Contrary to popular belief, a seafaring life is not necessarily a healthy one, and tuberculosis claims many victims amongst those who follow this calling. To what extent the disease actually exists is, however, difficult to ascertain. In the Royal Navy during the year 1924, 197 cases of tuberculosis occurred, with a case incidence of 2·24 per 1,000. In the same year the death-rate from tuberculosis is given as only 0·27 per 1,000.[1] In connection with the latter figure it must be noted that the majority of men, when diagnosed as tuberculous, are forthwith discharged from the Service. Hence, if a man dies of tuberculosis at any time after his discharge his death will not be represented in this mortality figure, but will fall into the deaths of the general population.

In the Mercantile Marine no incidence figures are obtainable, and the mortality figures are again unreliable. The annual return of deaths issued by the Board of Trade deals only with deaths occurring actually on board ship, or from acute illness in the hospital to which men have been discharged from their ship. This return, therefore, does not include deaths from tuberculosis occurring during, or subsequent to, sanatorium treatment ashore; and the majority of deaths from tuberculosis must obviously occur subsequent to the man's discharge.

In the Board of Trade return for 1924 the number of deaths from tuberculosis of all forms amongst British seamen in the Mercantile Marine is given as thirty-three, and the number of men occupied for the same period may be taken approximately as 150,000. Thus the official death-rate is 0·22 per 1,000, or about one-tenth of the standard death-rate.[2]

[1] See Statistical Report on the Health of the Navy, 1927.

[2] Consult paper by Fleet-Surgeon Home in Proceedings of the Royal Society of Medicine, August, 1926.

On the other hand, Knobel[1] has calculated the average annual death-rates amongst water transport workers in London for the years 1921 and 1922 as follows:

Petty officers, seamen, and deck hands ...	3·5 per	1,000.
Firemen, greasers, and trimmers ...	7·0	„
Pursers, stewards, and domestic staff ...	4·4	„
The rate for the total occupied males in London for the same period was ...	1·8	„

Knobel's figures, calculated from figures supplied by the Registrar-General and the Census returns, must be regarded as giving a better picture of the actual state of affairs than the figures of the returns issued either by the Royal Navy or by the Board of Trade.

Confined quarters and poor accommodation provided for the crew in many ships are no doubt partly responsible for the prevalence of tuberculous disease. The "fo'castle" and the "glory hole" are ideal for the spread of infection, whilst carriers are numerous enough owing to the somewhat cursory examination of the crews on joining the ship.

The system of four-hourly watches is probably not without danger to health; for insufficient sleep, exposure alternating with confinement in close ill-ventilated quarters, must be a strain on the health of the men. The working hours of a steward are long and arduous; these men are seldom on deck, and they are undoubtedly exposed to infection from passengers.

Excesses ashore doubtless play their part, but such factors are not peculiar to seafarers. Signs of excess, in my opinion, are not more frequent in these sea-going men than in a similar body of landsmen.

It may fairly be said that stricter examination of both passengers and crew ought to be made before they are allowed to join a ship, and much remains to be done to improve the existing accommodation for employed men at sea.

After discharge from service afloat, a sailor in most cases proceeds to his own home, and is there dealt with by the local authority. But in many cases the man has no home to go to, when the responsibility for treatment rests with the authority in whose area the man has come ashore. Many of these men, after short periods of sanatorium treatment, though still active carriers of tubercle bacilli, return to sea. They may be rejected for service in the better ships, but they experience little difficulty in being signed on for a small ship, where they are even a worse menace to their fellows. Others enter the unskilled labour market, and others, too weak to work at all, drift into the Poor Law infirmaries. Similarly, foreign seamen and lascars without domicile may be found in various institutions as possibly somewhat unwelcome guests of the authority concerned.

[1] Knobel: *Tubercle*, June, 1924.

Enough has been said to show that the problem of the sailor afflicted by tuberculosis is a difficult one, and that there is scope for an organization which will care for these men, and co-ordinate on their behalf the several means of help available. Such an organization

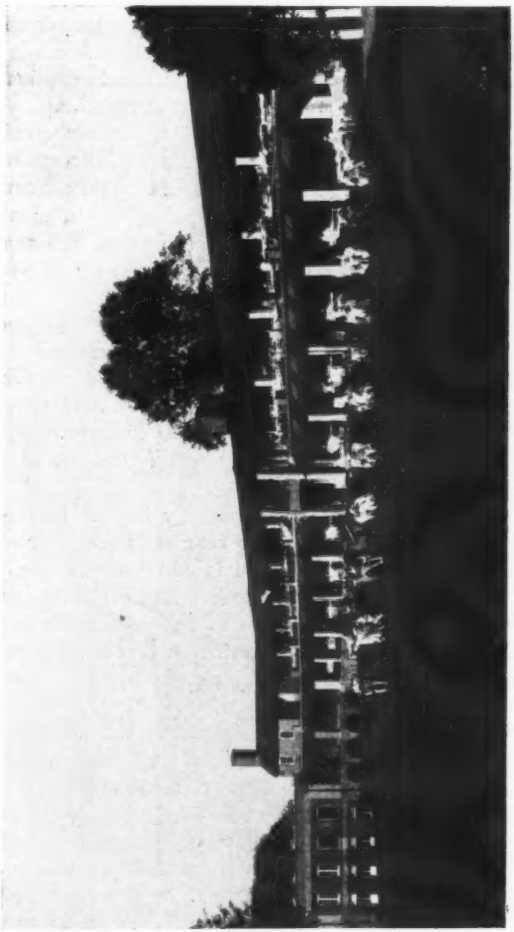


FIG. I.—KING GEORGE'S SANATORIUM FOR SAILORS.
The picture gives a general view of the pavilion. The patients in the foreground are cases of pulmonary tuberculosis undergoing sun treatment.

exists in the form of the Seamen's Hospital Society, which since 1821 has cared for the sick sailor. In the centenary year of the society Lord Inchcape raised a fund to establish an up-to-date sanatorium, where the sailor could be treated amongst his fellows, and cared for by those who know something of his life and special needs.

King George's Sanatorium for Sailors was opened in 1921 at Liphook in Hampshire. It is entirely modern in design, and is equipped for the treatment of all forms of tuberculosis. The accompanying photograph gives a general view of the sanatorium. With the approval of the Ministry of Health,[1] seamen can be sent from any part of the country without restrictions as to the form of tuberculosis from which they are suffering. Whilst most of the sailors whose home is in the London area are sent here, it is unfortunate that this institution is not more widely known and better utilized by other authorities.

It is true that adequate treatment of pulmonary tuberculosis is obtainable almost everywhere, but the advantages of treatment in a specially adapted environment such as this institution affords cannot be denied. Facilities for the treatment of non-pulmonary tuberculosis in adults are, however, still inadequate in this country, and the sailor need not be denied treatment for this condition when such an institution is available for the purpose.

It is not intended to enter into clinical details in this paper, but there is no doubt that patients with pulmonary tuberculosis who are admitted almost direct from the ship generally have a severe form of tuberculous disease. Early and doubtful cases are hardly ever seen, whereas the acute, progressive lesion is only too common. The widespread chronic fibrotic type with secondary infection is, of course, common in the older men.

The rarity of the early case may possibly be due to the spirit of the men themselves, for the man who returns to sea after his ship has been repeatedly mined or torpedoed is not the man to give way easily to the insidious onset of tuberculosis. Another interesting fact relates to the bad prognosis which has to be given in cases of pulmonary tuberculosis occurring in the oriental as well as in coloured races generally. Our Chinese and Japanese patients show little resistance to tuberculosis.

With regard to the treatment of pulmonary tuberculosis, a special feature at King George's Sanatorium for Sailors is the carefully controlled employment of heliotherapy and aerotherapy for most afebrile (resting) cases. Further experience has certainly not lessened the value previously attached to this auxiliary method of treatment.[2] Non-pulmonary disease is treated by the methods which Sir Henry Gauvain has used so successfully in children. It may not be generally known that these methods are just as applicable to adults as to children, and in my opinion of equal value.

In order that heliotherapy may be still further applied, a ten-bedded ward has been built, consisting almost entirely of vita glass. It is

[1] See Memoranda 72 / T and 120 / T.
[2] Wood : "Heliotherapy in Pulmonary Tuberculosis," *Lancet*, August 21, 1926.

designed so that the whole of the ward, with the exception of the centre portion of the roof, can be thrown completely open. Thus patients may be given either ordinary heliotherapy, or in bad weather exposed to the sky-shine through the vitaglass. An artificial light

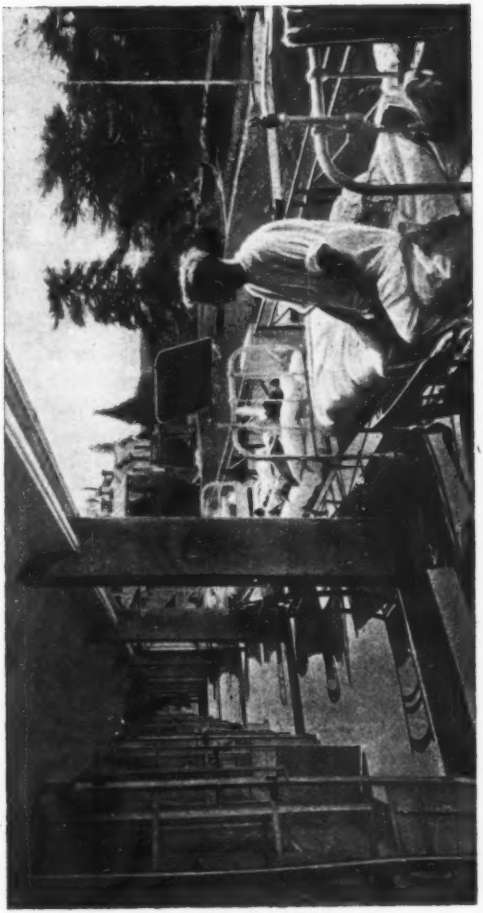


FIG. 2.—KING GEORGE'S SANATORIUM FOR SAILORS.
The picture gives a view of the balcony on the upper floor of the main building. This floor is reserved for cases of non-pulmonary tuberculosis.

department has also been installed, where an endeavour is made to reproduce the conditions of natural heliotherapy and aerotherapy, as well as to administer intensive light treatment when required.

It may be said with some confidence that the Seamen's Hospital Society has provided an institution which is certainly adequate for the

treatment undertaken. But the work must not end here. Although many men become well enough to resume their occupation, the majority are unfit to return to sea, and a change of occupation, however undesirable, may be a compulsory measure. These men obviously need after-care, and in many instances it has been possible to make arrangements for them. It is sometimes possible to arrange with the shipping company by whom the man has been employed for a transfer to some more suitable work; a post ashore can sometimes be obtained. In dealing with foreign tuberculous sailors, repatriation can generally be arranged for.

A special problem arises with regard to the young tuberculous ex-naval man, discharged from the service with a gratuity of a few pounds only, and with no training to fit him for civilian life. Much remains to be done to help such distressing cases. Through such an organization as the Seamen's Hospital Society much valuable help could be rendered.

Whilst the sailor is generally untrained in any occupation other than his own, yet that he is a "handy man" is proverbial. It would seem that he is just the man to benefit by training in a tuberculosis colony with a view to permanent settlement; it is hoped that further work in this direction will shortly be undertaken. Beyond the ordinary staff of our institution at Liphook, a few salaried posts have already been made, whereby the healed tuberculous sailor may become a definite economic unit, and it is hoped to extend this work.

METEOROLOGICAL OBSERVATIONS AT TUBERCULOSIS SANATORIA.

By A. NIVEN ROBERTSON,

M.D., M R.C.P., D.P.H.,

Medical Superintendent Derbyshire County Sanatorium, Walton, near Chesterfield.

It is well known that in the conduct of open-air treatment differing types of patients require different climates. An early case will do well in an exposed bracing atmosphere; an advanced case will do better in a warmer, more equable atmosphere, and so also will the chronic bronchitic subject. A patient with hæmoptysis or heart trouble may be endangered in a climate of high altitude and lowered atmospheric pressure, and a patient who has an artificial pneumothorax produced will require to have his pleural pressure adapted to

climate if he goes from the plains to the mountains and *vice versa*. Cases of chronic emphysema and chronic asthma are peculiarly susceptible to climatic variations. Dr. Gordon, of Exeter, has shown the effect of rain-bearing winds in relation to tuberculosis. Sir Henry Gauvain has pointed out how some cases of surgical tuberculosis do well at the seaside with much diffuse and reflected sunlight, while others do better in inland climates. Professor Leonard Hill has impressed upon us the importance of the cooling power of the atmosphere in open-air treatment.

Attempts have been made to attribute gain in weight in tuberculous cases resident in sanatoria to various single climatic factors, such as relative humidity: but by a study of continuous katathermometric curves and weight curves at the Derbyshire Sanatorium for the last four years I think there is a correlation between these curves, and that the gain or loss of weight is partly dependent on the cooling power of the air, which, as Dr. Leonard Hill has pointed out, is a resultant of all the measurable factors in climate. Climate, therefore, must be considered a paramount factor in open-air treatment, and those who use this treatment should use it scientifically and be students of climatology.

I am of the opinion that meteorological observations should be carried out at all sanatoria in Britain. By the collection of such observations a meteorological directory of British sanatoria could be compiled. This would be most useful for reference by general practitioners, medical superintendents, and also patients. A doctor could choose the climate most suited to his patient's needs when advising him to seek sanatorium treatment, and the choice would be made in accordance with scientific data.

In choosing a site for the establishment of a sanatorium, meteorological data regarding that site should have been obtained beforehand, and meteorological desirability should be placed in the forefront in making a choice of position. Too often the site of the sanatorium has been left in the hands of a committee, who think more of the price of the land and its accessibility; and the site and planning of the sanatorium have frequently been left in the hands of medical officers of health without clinical experience in tuberculosis or experience of open-air treatment methods, and possessing no first-hand knowledge gained as the result of personal residence and systematic working in a sanatorium.

The meteorological observations required are as follows: (1) Wind estimated by an anemometer. (2) Wind direction as registered by wind vane. (3) Rainfall as recorded by rain gauge. (4) Relative humidity according to hygrometer. (5) Barometric pressure by reliable barometer. (6) Temperatures taken by maximum and minimum

thermometers. (7) Cooling power ascertained by katathermometer. (8) Radiant heat registered by Black Fur or radiation thermometer. (9) Ultra-violet light recorded by Hill's methylene-blue gauge or other reliable register. (10) Sunshine estimated by sunshine recorder. (11) Dull and bright days record. (12) Dust counts by Aitken's Dust Counter might also be carried out. Only standard methods as used and approved by the Meteorological Office should be adopted, and the readings should all be taken at the same time of the day in the different sanatoria.

Some critics may argue that observations are already carried out if the sanatorium is situated near a large centre of population or adjacent to a health resort, but it does not follow that the climatic conditions of the sanatorium are the same as in a neighbouring town. If the sanatorium is on a more exposed site—*e.g.*, on a hill above the town—the cooling power of the air there may be much higher, the winds greater, and the sunshine more abundant. If it is protected by a cliff which faces south, it may enjoy much more radiant heat, so that the air is sometimes too hot and oppressive for patients. The variations in climate within a small radius may indeed be well marked. To realize this we have only to observe how much longer the snow will lie in a hollow on the north side of a hill, or how some flowers will grow on a certain warm sunny bank in a district and nowhere else. I may be in fog in Chesterfield in the morning, but when I have reached the sanatorium two miles off and at a higher altitude I shall probably be in bright sunshine.

I would add that observations must be made of the air in which the patients actually live, and for that reason I would advise that the Stevenson's box should be placed in the patients' quarters, but not sheltered by them. The observations relating to cooling power especially should be made in the patients' precincts. I feel sure that if these meteorological observations which I have suggested were carried out at all sanatoria many new facts would be discovered, and a more scientific knowledge regarding the effect of open air on our patients would be gained.

THE TUBERCULIN DISPENSARY.

By W. CAMAC WILKINSON,

M.D., F.R.C.P.,

Late Lecturer in Medicine and Pathology, University of Sydney; Director London Tuberculin Dispensary; Author of "Tuberculin in Diagnosis and Treatment of Tuberculosis," etc.

The tuberculin dispensary has been described by one of Germany's greatest authorities, Professor Loeffler, who was for many years Professor Koch's chief assistant, as "the latest and for the poorer classes the most important link in the chain of measures" designed to reduce the mortality and morbidity of chronic pulmonary tuberculosis.

The tuberculin dispensary system can be successfully applied to the needs of the nation at an economic cost. There are at least 250,000 industrial workers in England and Wales who have been infected with tuberculosis, and urgently need treatment. Stretched to their utmost, sanatoria cannot help more than 20,000 new cases each year, and the cost of treatment provided in a sanatorium, including loss of wages and of services at home, cannot be estimated at less than £100 per case. Sanatorium treatment is the chief method available for dealing with tuberculous cases in England and Wales, and the annual national bill for dealing with tuberculosis amounts to £3,150,000. Under the existing system practically 10 per cent. of the cases are dealt with and 90 per cent. are left beyond the pale of grace. Why not try the tuberculin dispensary system for the sake of the 90 per cent. now unprovided for? The tuberculin dispensary system can be successfully applied to 100,000 sufferers at a cost of £1,000,000, and the individual results would, I believe, be better and would last longer than the results now attained by sanatorium treatment. From this statement I would, however, exclude cases of mixed infection.

The cost of sanatorium treatment for a tuberculous patient is probably ten times as great as that for the care of the patient at a tuberculin dispensary, and the ultimate individual results of treatment at a tuberculin dispensary are, I believe, considerably better. These facts have never received the attention they deserve.

The tuberculin dispensary system appeals both to the self-interest and intelligence of the patient, and can automatically keep us in touch with the patients not only during treatment, but for the purpose of after-examination and after-care. Moreover, management of cases under this system, with the essential co-operation of district nurses, who visit the patients in their own homes, seems to afford the best means of putting into practice those measures of prophylaxis which can be readily

taught and learnt in the home. Here the mother should be the chief agent in applying the principles not occasionally, but constantly, year by year, in order to save her children from the risks of tuberculous infection and the development of active disease.

The tuberculin dispensary, I hold, has great and distinct virtues of its own quite apart from any financial considerations:

1. In a long experience I have shown that in the majority of cases of simple chronic pulmonary tuberculosis (uncomplicated with mixed infections) it is not necessary for patients to give up their work. The ordinary medical adviser can scarcely realize how much this means to the father, who is the breadwinner, and to the mother, who takes care of the home. A few months at a sanatorium cannot cure the disease or do much for prophylaxis, but it can irreparably destroy domestic happiness, and even break up the integrity of the home. National life and stability depend upon the health and well-being of the family unit. The effect of sanatorium régime for some months upon the character and mentality of a patient in many instances is far from helpful, as we all realize.

2. The tuberculin dispensary is designed to reduce to a minimum the amount of time lost by the necessarily frequent visits of the patients. In the past we used to see patients in the evenings at the London Tuberculin Dispensary, so that they should not lose any of their working hours, but with a small staff this is not possible. As the patients have to visit us during working hours, we recognize that their time is valuable, and the convenience of the patient is even more important than the convenience of the dispensary staff. Certainly, we do not ask patients to wait many hours in the waiting-room, and the patients soon learn for themselves the time that suits them best. During treatment visits are made mostly twice a week, unless there is some special reason for prolonging the interval. A visit to our tuberculin dispensary would show how well this simple system works.

3. The tuberculin dispensary system is comprehensive. Indeed, I believe it is the one and only all-inclusive system which is of any real value in the treatment of chronic forms of tuberculosis in the poorer sections of society, especially in cities and large towns. Where other systems, such as artificial pneumothorax, may help tens, and sanatoria may help hundreds, the tuberculin dispensary system can be of service to tens, hundreds, and thousands.

If £3,000,000 were devoted to our system we could deal with all cases amenable to treatment, excluding always mixed infections, and return £1,000,000 to the Treasury for use for other purposes. If statistics and the records of thirty-five years' experience can prove anything, I can claim to have proved that the tuberculin dispensary system is safe in the hands of experts, and certainly very effective. I

worked for ten years before I felt competent from my own knowledge to form a definite and unshakable opinion. I have worked for another twenty-five years on the same plan, and each year increased my confidence in the system. Who in London or elsewhere that criticizes our work knows anything about it from his own personal knowledge?

It needed fully five years for the medical profession in England to realize the full truth of the discoveries concerning the nature of diphtheria, tetanus, glanders, typhoid fever, and cholera. Any competent investigator could have realized these truths in a month.

I recognize that the discoveries of Koch with regard to the treatment of tuberculosis cannot be definitely realized and assessed at their proper value in less than five years; accordingly, in the same ratio our medical authorities will have to live 300 years before they can make the discoveries of Koch their very own, and exploit them with care, discrimination, judgment, and supreme skill.

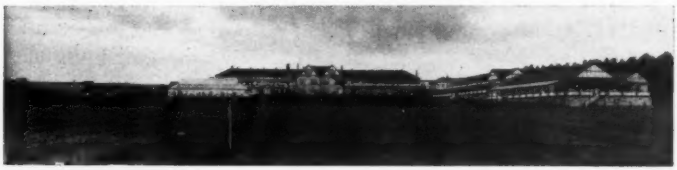
The London Tuberculin Dispensary is situated at 32, Fitzroy Street, W. 1, and is conducted under the auspices of the Tuberculin Dispensary Benevolent Society. Medical practitioners are welcome on Tuesdays and Fridays at 2.30 p.m.

ASSOCIATIONS AND INSTITUTIONS.

THE STANNINGTON CHILDREN'S SANATORIUM.

THE following account of the Stannington Children's Sanatorium, Clifton, Morpeth, Northumberland, a branch of the Poor Children's Holiday Association and Rescue Agency, has been kindly provided by Dr. T. C. Hunter, Medical Superintendent and Visiting Physician.

The Stannington Sanatorium was the first British sanatorium for tuberculous children; it was opened in 1907, the funds being provided by the generosity of the late Mr. Roland Philipson. Originally it contained fifty beds, but the number has been successively increased until today we have 310. The sanatorium has, from the first, been enthusiastically supported, and has always been run on popular lines, the generous contributing public being kept in touch with its work



STANNINGTON SANATORIUM FOR CHILDREN.

General view, showing latest extension, Brough Ward on the right, and Vita Glass Pavilion in the foreground towards left.

and visitors encouraged. Stannington Sanatorium was accomplishing notable service for the children long before the State took a practical interest in tuberculosis, and in our early days we relied entirely on public and private donations to carry on the good work. Today the sanatorium is organized to deal with all forms of tuberculosis, both medical and surgical. Its equipment consists of operating theatre, plaster room, X-ray plant, artificial sunlight department provided with three mercury vapour lamps, three carbon and three Tungsten arc-lamps, and one Finsen-Reyn lamp for the treatment of lupus; a vita glass pavilion, 70 feet by 25 feet; a school staffed by teachers specially trained for this class of work. There are forty nurses, who reside in their own nurses' home, and the medical staff consists of the medical superintendent, a surgeon, the resident medical officer and assistant medical officer.

The ages of the patients range from three to sixteen years. Cases are sent for treatment by tuberculosis medical officers, and payment is made through the tuberculosis fund, the charge being £2 to £2 5s. per week, according to the needs of the case. Patients come from various parts of the country, but chiefly from the northern counties, Northum-

STANNINGTON SANATORIUM FOR CHILDREN.
Interior of Vita Glass Pavilion : showing rest patients undergoing treatment.

STANNINGTON SANATORIUM FOR CHILDREN.
Open-air ward : showing cases of pulmonary tuberculosis undergoing treatment on glass-roofed verandah.

berland and Durham naturally contributing the largest number. On admission each child is placed in an observation or isolation ward for the first fortnight. Patients are then transferred to their respective wards, according as to whether they are the subjects of pulmonary or non-pulmonary lesions. Children who give a T.B. positive reaction are placed in wards for open cases. Cases in all stages of tuberculous disease are admitted: some are hopeless on arrival. The duration of stay varies according to the views and policy of the authority whose case is being treated. Some allow their children to remain until recovery or death, or until a stationary condition has been reached. One authority has a limit of two years, whatever the stage or prospect of the disease. Needless to say that this want of any considered plan results in some waste of money. Suspected or potential cases are treated, and this class of case, if carefully selected, yields real value to the community for all the money expended. But it is precisely this type of case that it is so difficult for the dispensary physician to assess. Many if allowed to run wild under periodic observation would recover without any expense. The weeding out of many such cases would reduce the swollen waiting list and allow infective cases and those showing definite signs to be dealt with promptly and with what one might hope would be permanently good results. The utilization of two or three hospital beds for observation purposes would tend to eliminate not only non-tuberculous cases, but also patients suffering from other medical and surgical diseases which occasionally find their way to a sanatorium. The results of treatment of our children have been most satisfactory, even in some cases remarkable, and are in direct proportion to the efficiency and vigilance of the staff. "In tuberculosis, anything short of the best is bad," and in a large institution it is possible to give the patient the best of everything on reasonable terms. One cannot heal tuberculosis with indifferent food and careless nursing. Economy should be studied in the market-place and in the avoidance of all waste, but certainly not at the bedside. Our aims at Stannington are to take infective children from their homes, to cure those who are capable of such a process, and to give the threatened or symptomatic cases a new lease of life. That the institution has won its way into the hearts of the people by its work is revealed by the fact that both great and small, rich and poor have always come forward abundantly to provide funds for all necessary enlargement and for the increasing equipment required by the demand for our beds. Further particulars can be obtained on application to the Headquarters Offices, 66, Percy Street, Newcastle.

THE DOCTOR GARRETT MEMORIAL HOME.

THIS home for children, situated at Min-y-don, Morfa Drive, Conway, North Wales, was established by the late Dr. T. J. Gallway Garrett, who was himself a sufferer from tuberculosis, and who retired to Conway after having worked among the poor of Manchester for many years, and served for a long time as a member of the Manchester Board of Guardians. Over a thousand children have been benefited by residence in this charming home. It is beautifully situated on the estuary of the Conway River, close to its opening into the sea. The climate is marine and mild and allows for an all-the-year-round open-

air treatment. The children are under skilled medical supervision and receive instruction in an unofficial school directed by an experienced and retired headmaster. There is a staff of trained nurses and lady attendants for both day and night duty. There are 200 beds, 86 of

which are in the open. No domestic work is undertaken by the children. The religious basis is non-sectarian, and Church of England and Roman Catholic services are held in the church of the home. Boys are admitted between the ages of two and twelve years, but are

not discharged at the age of twelve unless medically fit. Girls are retained until they are fourteen or more. The home is readily accessible, being three-quarters of a mile from Conway station on the L.M.S. main line from London to Holyhead.

NOTICES OF BOOKS.

THE TUBERCLE VIRUS AND GARLIC-THERAPY IN TUBERCULOSIS.

DR. W. C. MINCHIN has for many years been an enthusiastic student of tuberculosis and an ardent believer in garlic or its essential oil, *Oleum allii*, as a therapeutic agent of considerable value in suitable cases of tuberculosis. His monograph on the subject, containing also a summary of his researches on the tubercle virus and its polymorphism has now reached a third edition, and certainly merits the unprejudiced study of tuberculosis officers and all other medical advisers interested in tuberculosis.[1] Many years of serious inquiry have brought Dr. Minchin to the conclusion that the main infective agent in tuberculosis is not, as is usually believed, the tubercle bacillus itself, but a spheroid form of the organism which is related to the bacillus. These spheres, which appear to be similar to those observed by Professor Hans Much, are described as appearing in two forms—one which bears a close relationship to the ordinary tubercle bacillus and the granular staining bodies within it, and the other presenting as very small granules which are filter passers, and are not unlike the yeasts isolated from cancer cases by Dr. Gye. The granular forms of tubercle virus have been demonstrated in pus, sputa, and other pathological material from which tubercle bacilli could not be isolated, taken from cases where the tuberculous disease was virulent: here the spheres showed a definite budding yeast-like form. The work is illustrated by some fine reproductions of admirable photomicrographs. As regards the treatment of tuberculosis by means of garlic, a series of cases are quoted. Many of these have obviously improved with apparently no other treatment than *Oleum allii*, either applied locally or taken internally. Dr. Minchin emphasizes the fact that the drug is powerless in cases where localized collections of pus exist, but where drainage is free and tuberculous pus is discharged either from the lungs by expectoration, or from sinuses in cases of surgical tuberculosis, he states that good results follow. The drug is simple to obtain, is inexpensive and presumably non-toxic, and, when a patient has overcome his dislike of the smell, quite easy to take. The unpleasant odour which a person taking garlic exhales is nevertheless bound to be a disadvantage in popularizing the use of the drug. Moreover, one would like to know whether the patients whose cures are reported by Dr. Minchin received advice and treatment in addition to the exhibition of the *Oleum allii*. The rapid improvement recorded in the surgical cases certainly suggests a specific local action. The monograph affords abundant evidences of the painstaking researches of the author. It is admirably got up, but lacks an index.

SYLVIA K. GUTHRIE, M.D., M.R.C.P.

[1] "A Study in Tubercle Virus, Polymorphism, and the Treatment of Tuberculosis and Lupus with *Oleum allii*," by William C. Minchin, M.D. Third edition. Pp. xvi + 110, with 25 plates. London: Baillière, Tindall and Cox. 1927. Price 25s.

COLLAPSOTHERAPY IN PULMONARY TUBERCULOSIS.

Dr. M. L. Kindberg has contributed to the collection Médecine et Chirurgie Pratique series a serviceable little handbook on collapse-therapy.[1] It is clearly written, and will be found a useful help to those who want a general idea of the value of artificial pneumothorax or collapsotherapy. After describing the indications and contra-indications the author gives a very concise account of the technique of the treatment. The apparatus recommended is that designed by Kuss, and is one that is very popular in France, but, after all, the choice of apparatus is of less importance than the ability to use it. In dealing with the complications, the author has wisely given most space to consideration of pleural effusion, for this is by far the most common and important complication. If we count as effusion those cases where X-ray examination shows a small puddle of fluid, the author finds that 80 per cent. of his cases have this complication, and my own experience is exactly similar. These transient and small effusions are often overlooked, however, and are of no importance. The short chapter on oleothorax is most interesting. The author, whilst admitting that this method is too new to allow a final judgment of its value, feels that so far it has proved disappointing. This is an opinion with which most will agree. One chapter is given up to the consideration of surgical treatment, and reference is here made to thoracoplasty, phrenicotomy, and division of adhesions. Finally, the author discourses fully on the conclusions he has drawn as to the value of collapsotherapy. The book will be of value to anyone who wants a brief but clear and moderately written account of this method of treatment.

L. S. T. Burrell, M.D., F.R.C.P.

TUBERCULOSIS OF THE UPPER AIR PASSAGES.

Dr. Manasse has written an interesting monograph in which he records his experience in extensive anatomical examinations of cases of tuberculosis in the upper air passages.[2] He finds that few of the large number of publications regarding tuberculosis in this part of the body discuss the pathological anatomy in proportion to the clinical appearances and symptoms: hence his work. At the outset he says that section should always be made through the whole larynx, whether frontal or sagittal. He discusses his subject under the following heads: (1) Infiltration; (2) ulceration; (3) perichondritis; (4) tumours (tuberculomata). On the old question of the way in which tubercle enters the larynx the author's opinion is that the mucous glands are primarily affected, and the extension to other tissues is by way of the lymph vessels. The work is profusely and excellently illustrated.

Henry Smurthwaite, M.D.

[1] "La Collapsothérapie de la Tuberculose Pulmonaire," par Michel Léon Kindberg, Médecin des Hôpitaux de Paris. Pp. 160 and 12 figures. Paris: Masson et Cie 1927. Price 15 francs.

[2] "Die Anatomische Untersuchungen über die Tuberculose der oberen Luftwege," by Paul Manasse, M.D. Pp. 101, with 62 figs. Berlin: Julius Springer, Linkstrasse 23. 1927. Price Rm. 9.90; Gebunden, Rm. 12.

ENDOCRINES AND PULMONARY TUBERCULOSIS.

Dr. Pietro Maria Franco has published four brochures in which he details the experimental work which he has carried out in the Medical Clinic of the University of Naples in regard to the function of the adrenal glands and the thyroid gland.[1] He finds, as others have done, that the response of these glands to stimulation has a marked effect upon basal metabolism. He has also discovered that the application of X rays can affect basal metabolism, according to the influence exerted by the rays on these endocrine glands. His observations have been extended to the study of pulmonary tuberculosis, and he is of opinion that the pre-tuberculous stage and the various stages of pulmonary tuberculosis can be directly correlated with the degree of function possessed by the thyroid and adrenal glands. In this connection Dr. Franco has made a number of elaborate bio-chemical experiments. The subject of inquiry is a complicated and difficult one. If Dr. Franco's preliminary work is confirmed by others it will open a fresh field of investigation in relation to the diagnosis and treatment of pulmonary tuberculosis. A. S. M.

RADIOGRAPHY.

To the well-known Tuberkulose-Bibliothek ably edited by Professor Dr. Lydia Rabinowitsch there has just been added as No. 29 of the series an instructive "Röntgenatlas."[2] It contains 108 reproductions of radiographs and three other illustrations, each of which is accompanied by a full description. There is also a summary of the clinical notes and records of physical signs presented by the patient under consideration. The atlas is well arranged under specified headings, so that radiographs exhibiting certain features are grouped together, and the reader is taken from examples of early infections to the types of films given by advanced cases. Several cases are used to show the differential

[1] "Il sondaggio potenziale fisico della tiroide nei rapporti con il sondaggio potenziale fisico dei surreni nella tubercolosi polmonare" ["The physical investigation of the function of the thyroid gland in relation to the physical investigation of the function of the adrenal glands in pulmonary tuberculosis"]. By Dr. Pietro Maria Franco. Reprinted from *Archivio di Radiologia*, Anno III., Fasc. 1, pp. 28.

"Il sondaggio potenziale fisico dei surreni e della tiroide (I raggi Roentgen nello studio della capacità potenziale degli organi endocrine). Rivista Sintetica." ["The physical investigation of the function of the adrenal glands and of the thyroid gland (The Roentgen rays in the study of the functional power of the endocrine organs). Synthetic Review."] By Dr. Pietro Maria Franco. Reprinted from *Archivio di Radiologia*, Anno III., Fasc. 4. pp. 108.

"Die physikalische Sondierung der Leistungsfähigkeit der Nebennieren und der Schilddrüse (Die Röntgenstrahlen im Dienste des Studiums der Leistungsfähigkeit der endokrinen Drüsen") ["The physical investigation of the function of the adrenal glands and of the thyroid gland (The Röntgen rays as an aid to the study of the function of the endocrine glands")]. By Dr. Pietro Maria Franco. German Reprint, pp. 5.

"Contributo allo studio della glicemia nella tubercolosi polmonare" [Contribution to the Study of Glycæmia in Pulmonary Tuberculosis"]. By Dr. Pietro Maria Franco. Reprinted from *Folia Medica*, No. 17, 1927, pp. 15.

[2] "Röntgenatlas der Lungentuberkulose des Erwachsenen," by Dr. Med. Hanns Alexander and Dr. Med. Arthur Beekmann. Pp. 195, with 108 Röntgenbildern und 3 Abbildungen im Text. Leipzig: Verlag von Johann Ambrosius Barth. 1927. Price Rm. 15.50; Vorzugspreis Rm. 12.40.

diagnosis between large cavities and partial spontaneous pneumothorax. Certain operative procedures—*e.g.*, artificial pneumothorax, phrenicotomy, and thoracoplasty—are described, and towards the end of the book a useful number of lung diseases other than tuberculosis are illustrated. The reproductions are on the whole good, and the atlas is a useful addition to the series to which it belongs.

Dr. E. V. Romberg has written a suggestive essay expressing his views on the course of pulmonary tuberculosis.[1] Emphasis is given to the fact that the radiograph frequently shows foci of disease in areas other than those in which physical signs are first observed. Particulars are given of certain cases retained under observation for some time, various points being illustrated by several radiographs taken at intervals from each case. Consideration is given to a variety of ways in which the disease, once established, is known to extend.

J. E. A. L.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

Dr. Clive Riviere issued the first edition of his handbook on pneumothorax in 1917, and all tuberculosis officers and chest specialists will be glad to welcome a second edition revised and extended.[2] The first part of the volume dealing with pneumothorax treatment has been amplified by the addition of five new chapters dealing more particularly with the reduction of adherent pleura, pleural contraction and its effects, and the duration of treatment and its terminations. There are also informing sections on such important subjects as the division of pleural adhesions, small volume pneumothorax, selective collapse, oleothorax and pneumothorax in childhood. By the addition of the chapters on surgical treatment Dr. Riviere has rendered medical advisers a real service. This country is lagging grievously behind other progressive countries in employing surgical technique for the diagnosis and relief of pleural and pulmonary tuberculosis, and it may be hoped that Dr. Riviere's informing work will stimulate young surgeons to interest themselves in Continental methods of specialized surgery as applied to intrathoracic tuberculosis. Dr. Riviere provides the medical adviser with a serviceable guide to thoracic surgery for tuberculous cases. He tells of what has been accomplished, and indicates the principles which should guide in the selection of cases for operative measures. The final decision in most cases rightly remains in the hands of the physician, and he should fit himself by a study of Dr. Riviere's able and authoritative work to give a sound and serviceable decision. The work furnishes an interesting historical survey of the surgical treatment of pulmonary tuberculosis, and gives clear descriptions of the various forms of thoracoplasty, extrapleural pneumolysis or apicolysis, phrenic

[1] "Über die Entwicklung der Lungentuberkulose," by Ernst V. Romberg. Pp. 27, with 12 Abbildungen. Berlin: Julius Springer. 1927.

[2] "The Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis," by Clive Riviere, M.D., F.R.C.P., Physician City of London Hospital for Diseases of the Heart and Lungs. Second edition. Pp. xxii + 311, with sixteen skiagrams, nine figures, and bibliographies. London: Humphrey Milford, The University Press, Amen House, Warwick Square, E.C. 4. 1927. Price 10s. 6d.

evulsion or exairesis, commonly called phrenecotomy, and cavity drainage. There are chapters on the choice of an anæsthetic and preparation for operation and the conduct of after-care. The work concludes with an attempt to estimate the results, good and bad, of such forms of surgical interference as are now practised for the relief or arrest of pulmonary tuberculosis. It should be added that Dr. Riviere's book is issued in the admirable form which we are now accustomed to expect in the Oxford Medical Publications.

THORACOSCOPY.

The surgical treatment of pulmonary tuberculosis is fast finding favour. Thorocoplasty in this and other countries is now being carried out both for diagnostic and therapeutic purposes. The perfecting of the technique will be considerably assisted by the appearance of the fine Thoracoscopic Atlas prepared by Dr. Felix Cova, and which has just reached us from Milan.[1] Professor H. C. Jacobæus, of Stockholm, has provided a preface. He shows that the technique for thoracoscopy is difficult and calls for much experience if the best results are to be attained, and testifies to the practical value of Dr. Cova's beautiful atlas. The author recently published a work, "Toracoscopia, Operazione di Jacobæus," and has now supplemented it by a truly magnificent and monumental unique volume composed of a series of fifty coloured plates, beneath each being a description in Italian, German, and English. There are also several particularly fine plates illustrating the topographical anatomy of the chest. The thoracoscopic figures, printed in tri-chrome, are based on cases investigated in the Sanatorium Vittorio Emanuelo III. at Milan. Dr. Cova concludes his introduction thus: "The Jacobæus operation made possible by the sight of the pleural cavus by means of the thoracoscope may give brilliant results, completing the rest of the collapsed lung and making in this way easier the success of the pneumothoracic method, proposed and actuated first from the great Italian clinician, Charles Fovlanini." We warmly congratulate Dr. Cova on his beautiful work, which should be studied by all who advise or attempt thoracoplasty for pulmonary or other lesions of the chest.

Several instructive coloured plates illustrating lesions of the lung and pleura as shown by thoracoscopy are presented in Dr. R. Korbsch's "Handbook and Atlas on Laparoscopy and Thoracoscopy," new diagnostic measures which promise to further considerably our diagnostic powers.[2] The work is Vol. IX. of "Lehmanns Medizinische Lehrbucher," and certainly merits the serious study of diagnosticians and surgeons desiring guidance with regard to modern technique in the exploration of chest and abdomen.

[1] "Atlas Thoracoscopicon," by Dr. Felix Cova. With 50 thoracoscopic figures reproduced in tricromies by Officine Incisione Cromografi, che, Via Fauché, No. 6, Milan, and published at the Libreria Internazionale by Sperling and Kupfer, Via Larga 21, Milan. 1928. Price Mk. 37.50, or £1 17s. 6d.

[2] "Lehrbuch und Atlas der Laparo- und Thorakoskopie," by Dr. Roger Korbsch, leitender Arzt der inneren Abteilung des St. Elisabeth, Krankenhauses in Oberhausen. Pp. 73, mit 29 farbigen Abbildungen Auf 15 Tafeln und 8 Textfiguren. München: J. F. Lehmanns, Paul Heyse-Strasse, 26. 1927. Geh., Mk. 10; Geb., Mk. 12.

CHRONIC PULMONARY CATARRH.

Dr. Duncan Leys has published a suggestive monograph on "non-specific" chronic respiratory troubles, which is not only timely in its appearance, but by its ingenious regrouping of clinical data and fresh presentation of theoretical considerations is both stimulating and helpful.[1] The work opens with a concise historical review, an account of the clinical syndrome, and a study of infective agents. Then follows an account of the origin of fibrosis, descriptions of complications, and particulars regarding X-ray appearances; after which are excellent chapters on prophylaxis, treatment, and prognosis. The appendix contains reports of 100 cases of chronic pulmonary catarrh, records of cases collected from the literature of the subject, an account of bacteriological investigations, and a list of 124 references. The author has studied cases of four kinds: (*a*) Patients with advanced fibrosis and bronchiectasis; (*b*) patients with "recurrent bronchitis," "unresolved pneumonia," "residual pneumonia," etc.; (*c*) patients seen in the acute stage of "broncho-pneumonia," and observed for some months afterwards; (*d*) patients who had passed through an attack of "broncho-pneumonia," with measles or pertussis, and who, having been discharged as recovered, were traced and examined some months or years later. At the present time there is no doubt tuberculosis officers and others wrongly label many of these cases as tuberculous, and particularly when they are met with in children. Dr. Leys shows how important and yet how difficult it often is to arrive at a reliable diagnosis and prognosis. His monograph is one which deserves the serious study of every physician dealing with chest cases.

ACTINOTHERAPY.

Dr. Oskar Bernhard of St. Moritz has favoured us with copies of two papers which he has contributed to the "Handbook of Light Therapy," edited by Drs. W. Hausmann and R. Volk.[2] Dr. Bernhard may justly claim the title of the "Father of Modern Heliotherapy," for his favourable results and his teaching of this treatment preceded and inspired the establishment of Rollier's well-known institute at Leysin in 1904. The first paper gives an historical account of the evolution of heliotherapy from the days of Herodotus to the present time. One illustration shows Amenophis IV. (1375-1358 B.C.), his wife and two children sitting on stools exposed to the sun's rays. This Egyptian picture, apart from the hieroglyphics, might be taken to represent a modern light clinic and is but another example of history repeating itself. The second paper gives a brief but concise account of the application of heliotherapy to different forms of surgical disease. Here Dr. Bernhard's ripe experience indicates the advantages of natural sunlight (including moving and fresh air) in the treatment of surgical tuberculosis as well as in other surgical conditions. A. S. M.

[1] "Chronic Pulmonary Catarrh," by Duncan Leys, M.B. (Oxon), M.R.C.P. (London), John and Temple Research Fellow in Diseases of Children, St. Thomas's Hospital. Pp. viii + 130. London: H. K. Lewis, 136, Gower Street, and 24, Gower Place, W.C. 1. 1927. Price 7s. 6d.

[2] (1) "Die Historische Entwickelung der Lichttherapie" ["The Historical Development of Light Therapy"]. Pp. 12, with 3 illustrations. (2) "Die Heliotherapy Chirurgischer Erkrankungen" ["Heliotherapy in Surgical Diseases"]. Pp. 35, with 12 illustrations. Vienna: Julius Springer. 1927.

TUBERCULOSIS FIGHTERS.

Dr. J. Arthur Myers has produced a work which is a novelty in tuberculosis literature.[1] It is a collection of twenty-four biographical sketches of those who have fallen victims to tuberculosis. This scourge exacts heavy toll from the children of men, and has robbed the world of some of its choicest souls. Dr. Myers has provided a book of real interest and one which will uplift and hearten all who strive to overcome tuberculosis. Among the lives considered are Paganini, Schiller, Bichat, Laennec, Keats, Chopin, Thoreau, Dostoievsky, Trudeau, and Mrs. Browning. It is of interest to note that some of the men who are referred to are alive and have overcome their foe. Dr. Myers has written several books of considerable assistance to those who as patients and advisers are engaged in the Tuberculosis Campaign. We would like to suggest to him as a future work the presentation of the problem of tuberculosis as set forth in literature, particularly novels and plays.

MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

Professor G. F. Still's justly popular work on "Disorders and Diseases of Childhood" has now reached its fifth edition.[2] It is a notable member of the well-known series of Oxford Medical Publications, and is appropriately dedicated to Sir Thomas Barlow, whose valuable services in the interests of suffering children are recognized throughout the civilized world. Pediatrics, as Dr. Still shows in his preface, is a speciality of but recent growth, and yet theory, observation, fact and hypothesis relating to lesions and derangements met with in early life have accumulated to such an extent that discrimination and evaluation is difficult. Dr. Still's work is invaluable to the young practitioner, in that it deals principally with questions of diagnosis and treatment, and is mainly based on the author's own extensive experience. In fifty-two chapters are set forth the more important troubles which the doctor is called to deal with in children and adolescents. Such a book as this will be of the greatest service to tuberculosis officers and others who in sanatoria, open-air schools and elsewhere have to deal with young subjects. There are admirable chapters on tuberculosis as it presents in glandular, pulmonary, abdominal and other forms. There are instructive charts and figures. Dr. Still is of opinion that "amongst hospital patients in London nearly one-third of the child mortality is due to tuberculosis." He believes that "if the whole period of infancy and childhood up to the age of twelve years be taken into account, the view that milk infection is chiefly responsible for the heavy incidence

[1] "Fighters of Fate: A Story of Men and Women who have achieved greatly despite the Handicaps of the Great White Plague," by J. Arthur Myers, Associate Professor of Preventive Medicine, Medical and Graduates' Schools, University of Minnesota. With an Introduction by Charles H. Mayo, Mayo Clinic, Rochester, Minnesota. Pp. xix+318. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1927. Price 13s. 6d.

[2] "Common Disorders and Diseases of Childhood," by George Frederic Still, M.A., M.D., LL.D., F.R.C.P., Professor of Diseases of Children, King's College, London, etc. Fifth Edition. Pp. xiv+1032, with 89 figures. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4. 1927. Price 30s.

of tuberculosis in childhood is untenable." Dr. Still admits that some years ago he was opposed to the boiling of milk for children, but he now says: "With larger experience I have adopted different views; I have seen so many cases in which there was good reason to suppose that unboiled cow's milk was the source of infection, that I regard it as always advisable to pasteurize or boil cow's milk for children during the most susceptible period, the first five years, and longer if the child has shown evidence of tuberculous tendencies—for instance, tuberculous glands in the neck—or has a strong family history of tuberculosis." Dr. Still's studies on tuberculosis are of the greatest interest and value. The whole work is a masterly one, and no doctor's bookshelf should be without this indispensable guide to medical practice among children.

Dr. M. Jaquerod has recently issued a second English edition of his manual for tuberculous patients.[1] The title-page bears the following words: "To recover from tuberculosis the patient should become his own physician." The author rightly holds that "it is the doctor's duty to teach the patient how to cure himself," and his sensible little guide-book certainly goes far to help both doctor and nurse in attaining the desired end. Dr. Jacquerod's manual is no doubt intended primarily to help his patients undergoing treatment at Leysin, but it is a work which will prove of assistance to the wise patient everywhere.

Sir Henry Lunn and his sons have rendered notable service in opening up Switzerland to British health and holiday seekers and those who delight in the recreative benefits of winter sports. Mr. Arnold Lunn has done much to reveal the joys of ski-ing to Englishmen. His books on mountaineering and ski-ing are now recognized as authoritative. The latest volume is a general guide to Switzerland and is a member of the delightful series of "Kit-bag Travel Books."[2] Switzerland is to be counted as almost the author's homeland, for since boyhood he has wandered far and wide through the playground of Europe. In the charming travel companion, which everyone who goes to Switzerland should take with him, Mr. Lunn has set forth with real literary skill the history of Switzerland and has described in a way which is eminently serviceable the chief features of the more important centres, together with much that will be of interest to those who desire to explore the less known districts. The beautiful illustrations add to the attractiveness of this appealing guide-book. All sorts and conditions of men, women, and even children now visit Switzerland, and medical advisers are rightly expected to be personally acquainted with the health stations and sanatoria and holiday and sports resorts of the wonderland which Providence has placed in the centre of Europe. Mr. Arnold Lunn's volume is a perfect introduction to Switzerland

Every year a very considerable number of doctors, students, and others seek recuperation and recreation in winter sports in Switzerland. Here in many of the health stations where patients smitten with

[1] "The Treatment of Pulmonary Tuberculosis," by Dr. Marc Jacquerod, Swiss Federal Diploma, Physician-in-Charge Grand Hotel Sanatorium, Leysin, and Medical Director of the Société Climatérique of Leysin, Switzerland. Second English Edition, revised by S. F. Silberbauer, M.D., F.R.C.P. (Edin.), Lecturer in Clinical Medicine, University of Cape Town, etc. Pp. xi+67, with 6 figures. London: Baillière, Tindall and Cox. 1927. Price 1s. 6d.

[2] "Switzerland: Her Topographical, Historical, and Literary Landmarks," by Arnold Lunn. Pp. 320, with illustrations and map. London: George G. Harrap and Co., Ltd., 39-40, Parker Street, Kingsway, W.C. 2. 1928. Price 7s. 6d.

tuberculosis or convalescing from other diseases are winning back health, their relatives and friends can participate in various sports, and even invalids may have considerable enjoyment as lookers-on. The sanatoria centres are limited in number, but the places open for winter sports now seem almost unlimited. But if the winter sportsman is to gain the greatest benefit from a holiday in the Alps he must have expert guidance. Mr. Brian Lunn, who is a member of the distinguished family which has rendered notable service in developing winter centres in Switzerland for English people, has written an ideal book for young winter sportsmen in the form of "letters" dealing with all the many practical points as to places, equipment, travel, and training.[1] There are admirable descriptions of essential matters relating to the principal winter sport for the young and vigorous—ski-ing, its tests and clubs; touring, and racing. There are also excellent accounts of curling and figure-skating. The book is attractively written in crisp, vivid English, and is thoroughly practical and helpful. The appendix alone contains instruction enough to make the book indispensable for winter sportsmen Everyone going to Switzerland in the winter should possess a copy of Mr. Brian Lunn's stimulating and informing work. The illustrations are delightful.

The March number of the *Edinburgh Medical Journal* is a "Tuberculosis Number," and among the original articles are the following: "Hæmolytic Streptococci as Secondary Infectors in Pulmonary Tuberculosis," by Dr. W. M. Cumming; "The Question of the Filtrability of the Tubercle Bacillus," by Dr. J. M. Alston; "Observations on the Use of Sanocrysin in Tuberculosis," by Professor D. Murray Lyon; "The Cerebro-Spinal Fluid in the Diagnosis of Tuberculous Meningitis," by Dr. Donald Stewart. There are also communications on ultra-violet therapy.[2]

The Cripples' Journal is fulfilling a valuable service for cripples and all who seek to help them. Under the editorial direction of Mr. Frederick Watson the journal is a live one, and the current issue contains a collection of excellent articles, a number being contributed by well-known experts.[3]

We have received a copy of the Italian journal *Tubercolosi* for November, 1927. It contains an interesting article "On the Subsequent Course of Pulmonary Tuberculosis after Surgical Intervention," by Dr. A. Taronna; "A Report upon the Localization of Pulmonary Tuberculous Lesions and Cutaneous Allergy," by Dr. F. Parodi; and a number of abstracts of articles on tuberculosis appearing in the current literature. Information concerning the progress of the anti-tuberculosis campaign in Italy also appears in this journal.

The January and February numbers of *Die Tuberkulose* begin a new volume.[4] This Zeitschrift has always a number of original articles on

[1] "Letters to Young Winter Sportsmen," by Brian Lunn. Pp. xi + 148, with humorous picture cover and 8 full-page illustrations. London: Philip Allan and Co., Ltd., Quality Court, Chancery Lane, W.C. 2. 1927. Price 6s

[2] The "Tuberculosis Number" of the *Edinburgh Medical Journal* is New Series, Vol. XXXV., No. 3, and is published by Oliver and Boyd, Edinburgh, price 4s.

[3] *The Cripples' Journal* is published by the Central Council for the Care of Cripples, Carnegie House, 117, Piccadilly, and is printed by John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, W. 1. 1s 6d. post free each number.

[4] *Die Tuberkulose.* Zeitschrift für die Fortbildung des Praktischen arztes auf dem gesamten gebiet der Tuberkulose. Edited by Dr. F. Michelsson, Hohenstaufenstrasse, 23 II., Berlin, W. 30, and published at the Verlag der Aerztlichen Rundschau, Otto Gmelin, München, 2 No. 3, Wurzerstrasse, 1 C.

tuberculosis in addition to its well-classified synopses of current literature. The journal is one which should be read by all those desirous of keeping abreast of German progress in tuberculosis.

Tome II., No. 4, 1927, of the *Archives Médico-Chirurgicales de l'Appareil Respiratoire*,[1] contains an important article on "Abscess of the Lung and Interlobar Pleurisy," by Dr. Raoul Konrilsky, and a complementary and equally important memoir by M. Gaston Picot on "Surgical Intervention in Abscess and Gangrene of the Lung." Both articles are illustrated by admirable skiagrams. Synopses of current articles and an admirable bibliographical index relating to publications on pulmonary disease published in 1927 are additional features of these archives.

The Danish Ministry for Foreign Affairs, in association with the Danish Statistical Department, has issued a very complete and informing guide to all matters relating to Denmark and its people. For those visiting this interesting country for serious study this handbook is indispensable.[2]

The Swedish National Association against Tuberculosis has issued in English an account of recent researches and experiments relating to the prevalence of tuberculosis and means taken to secure its arrest.[3]

A new and revised edition of the official handbook describing the Small-scale Ordnance Survey Maps has just been published, and will be welcomed by motorists and others interested in the geography of the British Isles, particularly in relation to problems of transport.[4] The book contains specimens of the Ordnance Survey Small-scale Maps printed in colours, together with a concise description of each type of map, and Index diagrams showing the sheet lines of each series. The work is invaluable for the teaching of map-reading, and previous editions have been extensively used in schools. Particulars of the Ordnance Survey publications, which are supplied to schools at reduced prices, will be sent post free to teachers and Education Authorities on application to the Director-General, Ordnance Survey Office, Southampton.

"Burdett's Hospitals and Charities" is an invaluable reference volume for medical advisers and others engaged in philanthropic services.[5] The work founded by Sir Henry Burdett is now in its thirty-eighth year and has been brought thoroughly up to date. It is a reliable directory on all matters relating ro hospitals and allied institutions. A section is devoted to sanatoria and hospitals for the treat-

[1] *Archives Médico-Chirurgicales de l'Appareil Respiratoire* is published by Gaston Doin et Cie, of Paris.

[2] "Denmark." Pp. 279. Copenhagen: Dyva and Jeppesen. 1927.

[3] "The 'Hälsan' Institute in Norrbotten: An Experiment on the Lines of Social Hygiene in the Far North of Sweden, organized by the Swedish National Association against Tuberculosis, together with a Study on the Dissemination of Tuberculosis in Sweden," by Gustaf Neander, M.D., Secretary-General of the Swedish National Association against Tuberculosis. Translated from the Swedish by Grenville Grove, translator to the British Legation, Stockholm. Pp. 128, with illustrations and maps. Copenhagen: Levin and Munksgaard, 1928.

[4] "A Description of the Ordnance Survey Small-scale Maps." Sixth Edition. Pp. 30. Southampton: The Ordnance Survey Office. 1927. Price 1s.

[5] "Burdett's Hospitals and Charities, 1928: being the Year Book of Philanthropy and the Hospital Annual." Founded by Sir Henry Burdett, K.C.B., K.C.V.O. Thirty-eighth year. Pp. xvii+949. London: Faber and Gwyer, Ltd., The Scientific Press, 24, Russell Square, W.C. 1. 1928. Price 21s.

ment of tuberculosis, and there is also a list of beds reserved for tuberculous patients in hospitals, convalescent homes and institutions for cripples. There is a useful alphabetically arranged list of papers and periodicals in the United Kingdom dealing with medicine and allied subjects. The publishers have issued this long-approved annual in a worthy form.

Mr. Lionel Valdar is rendering a valuable service to members of the medical and nursing professions by the periodical issue of his informing and serviceable "Medical Blue Book," which should have a place in every doctor's consulting room.[1]

The L.T.A. Holiday Register[2] for 1928 is a little directory which doctors, nurses, almoners, and social workers will find very helpful in advising health and holiday seekers. It contains lists of apartments, boarding houses, and hotels alphabetically arranged under names of places at home and abroad, and personally recommended by members of the London Teachers' Association.

Medical advisers seeking guidance in regard to the health and holiday resorts of the Rivieras of France and Italy, either for themselves or their patients, will find descriptions and illustrations of places, maps, and all necessary information as to routes, hotels, fêtes and other events in an artistic volume, "The Peerless Riviera,"[3] published by the Southern Railway.

The Southern Railway has published a new edition of the Guide to the Riviera.[4] It is beautifully illustrated and furnished with maps, and provides valuable information which the doctor will find of service in advising his patients regarding suitable health stations.

The 1928 Official Guide issued by the Southern Railway is a voluminous work giving pictures and descriptions of the health and holiday centres on this far-extending system, together with particulars of hotels and other places for residence.[5]

The Great Western Railway has published a new edition of its Guide to the Cornish Riviera.[6] Separate illustrated booklets are available for Newquay, Falmouth, Penzance and other health stations in the Delectable Duchy.

"Holiday Haunts" is the official guide to holiday resorts served by the G.W.R.[7] It is a handsome volume, beautifully illustrated,

[1] "Valdar's (Copyright) National Medical Blue Book: The Standard Telephone Directory for the Medical Profession," published by Valdar's Medical Blue Book Company, 177, Fleet Street, E.C. 4 (Telephone: Central 2627). Price 3s. post free.

[2] The L.T.A. Holiday Register is published by the London Teachers' Association, 11, Pilgrim Street, Ludgate Hill, E.C. 4. Price 1s. 1½d., post free.

[3] "The Peerless Riviera: A Complete Illustrated Guide to the French and Italian Riviera and Rhône Valley." Fifth Edition. Pp. 272, with maps. London: The Southern Railway of England, Waterloo Station, S.E. 1. 1928. A copy will be sent free to any medical practitioner on application.

[4] "The Peerless Riviera: A Complete Illustrated Guide to the French and Italian Riviera and Rhône Valley." Fifth Edition. Pp. 272. London: Southern Railway of England, Waterloo Station, S.E. 1. 1928. Price 2s.

[5] "Hints for Holidays in Southern Sunshine, 1928: Official Guide to Health and Pleasure Resorts in the South and West of England served by the Southern Railway." Pp. 632, with illustrations and maps. London: Southern Railway, Waterloo. Price 6d.

[6] "The Cornish Riviera." Fifth Edition. Pp. 73, with illustrations and maps. London: Great Western Railway Company, Paddington Station, W. 2. 1928.

[7] "Holiday Haunts in England, Wales, Channel Islands, and Isle of Man." Pp. 964, with maps and illustrations. London: Paddington Station. Price 6d.

affording all necessary information and guidance for health and holiday seekers and travellers generally, and providing particulars regarding every kind of accommodation. The G.W.R. provides interesting sets of lantern slides illustrating the Cornish Riviera.

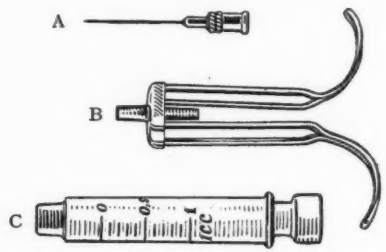
The January number of the *Revista de Higiene y de Tuberculosis* (the Director of which is Dr. J. Chabas), published at Valencia, contains original articles by Spanish physicians, which treat of Lipiodol as a medium of radiological contrast in the diagnosis of pulmonary tuberculosis, artificial pneumothorax (operation of Jacobæus), and the various surgical operations devised for the treatment of pulmonary tuberculosis. The rest of the journal is devoted to abstracts of current literature. There is also a supplementary bulletin dealing with the anti-venereal campaign. This admirable journal indicates that Spanish medicine is keeping well abreast of modern progress in tuberculosis.

Mrs. G. M. Dodgson, Luss Cottage, London Road, Guildford, desires us to say that if readers of THE BRITISH JOURNAL OF TUBERCULOSIS would be good enough to pass on copies to her when finished with, she will be glad to send them regularly to missionary doctors and nurses serving abroad.

PREPARATIONS AND APPLIANCES.

HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

THE "AGLA" HYPODERMIC SYRINGE has proved justly popular as a compact, convenient, reliable means for subcutaneous medication. With the introduction of the specially-designed "AGLA" FINGER-GRIP ADAPTER its effectiveness has been increased. This ingenious contrivance is intended to be used in connection with the "plug-in" model of the syringe.[1] The arrangement is indicated in the accompanying illustration. A metal nozzle (B) takes the usual type of needle (A), and is fixed to one side of a plate, to the other of which is



THE "AGLA" SYRINGE AND FINGER-GRIP ADAPTER.

fixed a metal plug. The metal nozzle and plug are connected by a common bore, and the Adapter is completed by the attached finger-grips. The glass nozzle (C) of the syringe fits on the metal plug, between the finger-grips. The Adapter, in fact, provides the "plug-in" syringe with a metal nozzle and finger-grips, so giving complete control. It also secures greater ease in inserting the needle and injecting the medicament with much less chance of the syringe being broken by any movement on the part of the patient. The syringe may be safely placed on any flat surface without the risk of rolling off. The graduations, up to 1 c.c. or 20 minims, on the barrel of the syringe are plainly marked. The "Agla" Syringe is available in a number of serviceable forms, and for hypodermic and intramuscular injections. It is available in a spirit-tight container. The insulin syringe contains 1 c.c., graduated in $\frac{1}{20}$ths. The tuberculin syringe is for 1 c.c., divided into 0·05 c.c. graduations. There are also excellent syringes for the administration of sera.

[1] Further particulars and prices of the "Agla" Hypodermic Syringe and Finger-Grip Adapter can be obtained on application to Burroughs Wellcome and Co., Snow Hill Buildings, E C. 1.

In a former number of this journal appeared an illustrated notice of the Ever-Ready Safety Razor, an ideal shaving implement for patients and others. Attention may now be directed to the EVER-READY AUTOMATIC STROPPING MACHINE, which is an ingeniously constructed, strong, and simple appliance, which, without springs or delicate mechanism, provides for reliable stropping of blades.[1] The apparatus works automatically, reversing the blade with each stroke and so renewing the edge for efficient service.

Consumptive subjects and other tuberculous patients are oftentimes the subjects of a chronic inflammatory condition, frequently of a septic nature, involving the mucous membrane of the nose and throat. Moreover, especially in children, neglected septic tonsils, sometimes "buried," give rise to enlargement of glands, erratic temperatures, and otherwise complicate the clinical features of a case. Disease of the

THE "STERLING" AUTOMATIC ELECTRIC MOUTH AND THROAT LAMP.

nose and its sinuses is much commoner than is usually believed. It is absolutely essential that in every case a thorough examination should be made of the nose and throat. The illustration annexed affords a good general idea of the "STERLING" AUTOMATIC ELECTRIC LAMP, which already has won widespread popularity among general practitioners, tuberculosis officers, and others requiring a ready means for rapid examination of a patient's mouth and nose.[2] By merely depressing the tongue with the removable metal or wooden spatula the lamp is connected with the dry battery in the handle of the appliance, and at once a brilliant light is obtained. This excellent clinical instrument only needs to be used to be appreciated. It is one which every doctor should keep in his pocket or on his consulting table.

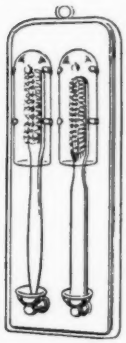
For male patients living in shelters, or places where hot water is not readily obtainable, the novel KINETIC AUTOMATIC SHAVING

[1] The Ever-Ready Automatic Safety Razor, Automatic Stropping Machine, and Blades are supplied by the British-American Safety Razor Company, Ltd. 3, Woodstock Street, Oxford Street, W. 1, price 4s. 6d.

[2] Prices and particulars of the "Sterling" Automatic Electric Mouth and Throat Lamp (Patented) can be obtained from the Sterling Corporation (Great Britain), Ltd., 17, Mortimer Street, W. 1.

HEATER will prove of service.[1] By means of this ingenious contrivance water can be rapidly boiled by a methylated spirit flame and the razor blade placed in the receptacle holding the boiling water rendered keen while material for the production of an effective lather is provided.

Large numbers of consumptive and other tuberculous patients attending tuberculosis dispensaries or entering sanatoria are the subjects of long-standing dental defects and oral sepsis. In health and in disease the hygiene of the mouth is a matter of primary importance. In securing proper care of the teeth a reliable tooth brush is an indispensable agent. The PERFECTA TOOTH BRUSH is one with a sensible, effective, serviceable handle so shaped and placed in relation to the bristles as to make cleansing of the teeth easy and thorough.[2] The tooth brush is in every way first class and only needs to be used to be appreciated.



THE HYGIENIC TOOTH-BRUSH PROTECTOR.

For use in hospitals and sanatoria, and especially in connection with open-air schools for children, the TOOTH BRUSH PROTECTOR shown in the accompanying figure is likely to be of service.[3] As indicated, each brush is protected from dust and dirt by a detachable glass tube, while the end of the handle rests in a nickel-plated cup.

THE JOHNSON METAL SPUTUM CUP HOLDER is in use in numerous sanatoria in America and this country.[4] This hygienic receptacle for the collection of expectorated material can be burnt or otherwise disposed of suitably when required and a new refill placed in the holder, and the appliance is ready again for the patient to use without any difficulty about cleansing or disinfecting on his part.

THE "CHARLOTTE" HOT WATER BOTTLE AND COVER.

THE "CHARLOTTE" HOT WATER BOTTLE AND COVER will be welcomed by all who realize the comfort and general well-being which can be afforded by a reliable and properly protected rubber hot water receptacle. It is well designed and effectively constructed of thoroughly good rubber, but its novelty consists in the cover, which is available in either pink or grey plushette and covers the stopper completely. The bottle can be filled without removing the stopper, and may be hung up when not in use.[5]

[1] Particulars regarding the Kinetic Automatic Shaving Heater can be obtained from Kinetic Patents, 6, The Green, Twickenham, Middlesex.

[2] The Perfecta Tooth Brush is manufactured by the Perfecta Patent Tooth Brush Company, 356, Strand, W.C. 2, price 2s. 6d. each, but special prices to hospitals, sanatoria, schools, etc.

[3] The Hygienic Tooth-Brush Protector is supplied by Cuff and Co., Limited, Powis Street, Woolwich, S.E. 18. Price 1s. 11½d., post 4d.

[4] Particulars and prices of the Johnson Metal Holders for Sputum Cups and Refills can be obtained on application to Johnson and Johnson, Slough, Bucks.

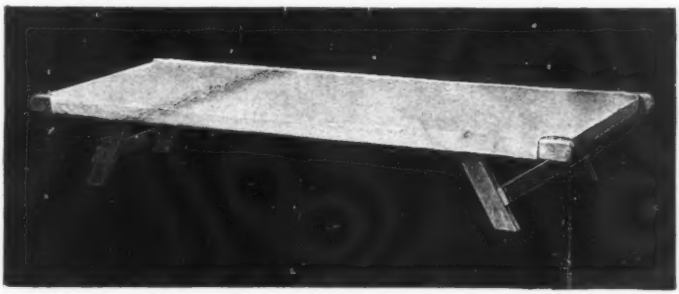
[5] The "Charlotte" Hot Water Bottle and Cover is supplied by C. J. Hewlett and Son, Ltd., 35-42, Charlotte Street, E.C. 2, at prices ranging from 1s. 9d. to 2s. 3d. according to size.

A reliable Pocket Fountain Pen is an indispensable companion for all medical practitioners and nearly every patient. The Conway Stewart Self-Filling Pen, No. 606,[1] has been designated "The Doctor's Pen." It is of convenient size and shape, holds plenty of ink, is built for hard and constant use, and possesses an osmi-iridium pointed

THE CONWAY STEWART DOCTOR'S PEN.

14-carat solid gold nib, made in a variety of points to suit any kind of handwriting. Doctors will find this pen reliable and particularly serviceable for rapid and heavy work. It is handsome in appearance and comfortable to write with.

The "Compton" Crèche Furniture has justly won a far-extending popularity, especially in the equipment of nurseries, infant welfare centres, and hospitals and other institutions caring for young children. We would direct special attention to the "MEYER" STRETCHER BED, which is an ideal resting couch for children in open-air schools and other centres where some convenient means are required for affording a secure, dry, comfortable, and generally effective horizontal couch for



THE "MEYER" STRETCHER BED.

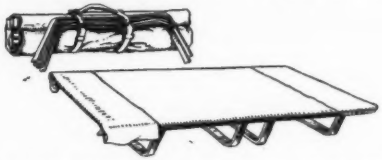
rest and sleep.[2] The chief feature of the Stretcher Bed is shown in the above figure. It is made of strong birch and heavy canvas, eyeleted and laced, thus allowing for ready detachment of the canvas for cleansing. The short legs fold inside the frame, and so permit of compact and convenient storage. The beds can be obtained in several sizes, and canopies can be fitted when required and pillows can also be obtained.

The firm of Trojan Limited has introduced an ingeniously planned and effectively constructed TROJAN PORTABLE SPRING-FRAME CAMP BED, the main features of which are indicated in the accompanying

[1] The Conway Stewart No. 606 Doctor's Pen is made by Conway Stewart and Co., Ltd., 75-82, Shoe Lane, E.C. 4. Price 17s. 6d.

[2] An illustrated price list of "Compton" Crèche Furniture can be obtained on application to the manufacturers, S. Clark and Co., Compton Works, Canonbury Road, N. 1.

figure.[1] It is a novelty which has been welcomed by campers and holiday-makers, and should prove of service in sanatoria, open-air schools, and for patients who desire a convenient, handy, light and strong resting couch, which they can take with them anywhere. The spring frame makes the stretched canvas very comfortable. The bed can be speedily fixed and readily taken apart and folded into small



THE TROJAN PORTABLE SPRING-FRAME CAMP BED.

space, 5 inches by 8 inches by 35 inches, and the 30-inch bed with springs complete only weighs 14 lbs., and when folded and strapped can easily be carried. It may also be noted that a form with rigid sides and suitable for use as a stretcher is also available. A specimen of the Trojan Bed can now be seen at the Children's Sanatorium of the National Children's Home, Harpenden, Herts.

The well-known firm of J. B. Brooks and Co., Ltd., of Birmingham, have introduced a special form of FOLDING TABLE, which is not only ideal for use in hospitals, sanatoria, open-air schools, and other institutions, but is sure of popularity in ordinary households for service in gardens, at picnics, and as a convenient companion in connection with motor excursions.[2] The chief features of this exceptionally useful novelty are indicated in the accompanying figure. The table is light, strong, rigid, portable, and folds into a small space most convenient for travelling and storage. We have used with great satisfaction a table the top of which has been finished in white cellulose lacquer, which gives a charming smooth surface which can be readily cleaned and withstands the action of acids, hot water and other agents which stain and ruin most tables. We strongly commend this cleverly designed and admirably constructed table for the use of tuberculous and other patients in their own homes or undergoing treatment in special institutions.

THE BROOKS FOLDING TABLE.

Dust is not only an evidence of hygienic deficiency and sanitary neglect, entailing discomfort and material loss, but oftentime is an agent in the production of disease. Dust is frequently the carrier of

[1] Full particulars regarding the Trojan (Patent) Spring-Frame Camp Bed can be obtained from the manufacturers, Trojan, Ltd., Purley Way, Croydon. The price is 21s. complete, with carrier; carriage, 1s. extra; waterproof material, 2s. extra.

[2] The Brooks Folding Table is manufactured by J. B. Brooks and Co., Ltd., Criterion Works, Great Charles Street, Birmingham. Price 27s. 6d.

tuberculosis. In all places where human subjects, and especially children, are to be found, war should be waged against dust. DUSMO is a useful weapon in this campaign.[1] It is used in many schools and other buildings, and should certainly be employed in connection with institutions where tuberculous and tuberculously disposed persons are to be found. Dusmo is available in two forms: "A" for use with carpeted and polished floors; and "B" for all plain floors, and those constructed of wood, stone, marble, rubber, linoleum, etc.

The CHESHAM GARDEN TABLE, indicated in the accompanying figure, will be appreciated by patients and others who live an open-air life and delight to take their tea out-of-doors.[2] This simple contrivance provides a portable, detachable support for cups, glasses, plates, etc. Motorists have found this novelty of service on picnic excursions.

Regulated exercise and rest in the open are among the most valuable agents in the treatment of consumptive and other tuberculous cases. A particularly serviceable companion for all patients who have to spend time out of doors will be found in the SEAT-STICK made in various forms by the well-known specialists in walking-sticks, umbrellas, etc., Messrs. Swaine and Adeney.[3] The accompanying figure indicates the chief features of the seat-stick, which for long has been approved by sportsmen and lovers of country life. The stick has a wood stem, while the fittings are of aluminium, and there is a lock-on detachable ground-plate. The handle is of covered pigskin, and when open a comfortable seat is provided. One of these seat-sticks makes an ideal gift for a patient.

THE FOLDING WALKING SEAT-STICK (OPEN).

Nurses and others in attendance on advanced cases of tuberculosis, elderly and infirm patients, will find their duties simplified by using the WILKINSON PATENT NAIL NIPPER.[4] These are made of hand-forged, highly tempered steel, and are so constructed that they fold into a convenient form for the pocket.

[1] Particulars regarding Dusmo may be obtained on application to Dusmo Company, Limited, Angel Road, Edmonton, N. 18.

[2] The Chesham Garden Table is sold by Thomas Gunn, Ltd., 30, Fore Street, E.C. 2. Price 2s. 6d. and 3s.

[3] The Seat-Stick manufactured by Swaine and Adeney, Ltd., 185, Piccadilly, W. 1, is available in a variety of forms varying in price from 25s. to 45s.

[4] The Wilkinson Patent Nail Nipper is manufactured by the Wilkinson Sword Co., Ltd., 53, Pall Mall, S.W. 1. Price 3s. 6d.

CORNISH CREAM is almost as famous as the delectable Duchy from whence it comes. It has long been popular as a nutrient for delicate and tuberculous subjects, and recent researches, particularly in regard to vitamins, have still further established this animal product as a very desirable dairy preparation. Patients in all parts of the country may now be supplied regularly with GOLDEN CORNISH CLOTTED CREAM sent direct from the farm.[1] We have recently had opportunities of trying this pure, fresh, reliable cream from the Mawnan farms, and can commend it to the notice of medical advisers and their patients, as well as to all who have a palate for this delicious product of the West Country.

NEW PROMONTA is a dietetic and therapeutic novelty.[2] It is an organic preparation rich in lipoids, vitamins, hæmoglobin, albumins, carbohydrates, and salts of iron and calcium, and has been advocated in cases of mental exhaustion, physical fatigue, nervous derangement, disordered metabolism, and during convalescence from serious illness. Dr. Wilhelm Kaufmann of the Beelitz Sanatorium, in a paper on "Experiments with Artificial Supplementary Food on a Biological Basis," records his experience on the administration of this food preparation to consumptive and other pulmonary cases, arriving at the conclusion that it is "a valuable supplementary food in all cases of debility and under-nourishment, such as result from severe chronic infectious diseases, in particular pulmonary tuberculosis." New Promonta is very palatable and can be taken with cold or warm drinks, and best before meals. It is available in powder and tablet forms.

Cod-liver oil has for generations maintained its position empirically as the most favoured agent in combating tuberculosis, and recent researches, particularly in regard to vitamins, are now justifying the faith for so long placed in this animal product. Many firms are now providing cod liver oil in various pharmaceutical forms, and its use in tuberculosis and for the treatment of other wasting diseases, and particularly as an agent of service in the growth of delicate children, is markedly increasing. We have recently had opportunities for using the GRIMSBY COD-LIVER OIL supplied by Fairbank Kirby (Grimsby) Limited.[3] This is one of the best forms of oil available, and it is supplied as pure, fresh, unrefined oil, or in emulsion with or without hypophosphites, at reasonable rates, special terms being made for hospitals and sanatoria. We have been specially pleased with one form flavoured with peppermint and very satisfactorily masking the taste of the oil, which many have difficulty in tolerating.

CROOKES' EMULSION, formerly known as Collosol Cod-Liver Oil Emulsion 50 per cent., is a reliable preparation of the liver oil of freshly caught cod, expressed on the trawlers in accordance with scientifically approved methods, and is thus supplied in a form which ensures unimpaired a physiologically standardized vitamin content.[4] The thera-

[1] Cornish Clotted Cream, free from preservatives, can be sent daily, post free, to any address in the British Isles, by Mawnan Farms, Limited, Mawnan, near Falmouth, Cornwall.

[2] New Promonta is supplied by the Promonta Company, Limited, Westmorland House, 127, Regent Street, W., from whom full particulars can be obtained on application.

[3] Particulars regarding the Grimsby Cod-Liver Oil preparations can be obtained on application to Fairbank Kirby (Grimsby) Limited, Cleethorpes Road, Grimsby.

[4] Full particulars regarding Crookes' Emulsion and Colloid preparations can be obtained on application to the Crookes Laboratories (British Colloids Limited), 22, Chenies Street, Tottenham Court Road, W.C. 1.

peutic virtues of cod-liver oil probably depend on its unsaturated fatty acids, which appear to lessen nitrogenous katabolism; the esters of these fatty acids, which it is claimed help to make good the deficiency met with in tuberculous subjects of lipolytic enzymes which, according to certain recognized authorities, dissolve the fatty envelope of the tubercle bacillus, so liberating antigens which develop tissue resistance; and the presence of vitamin A essential for effective growth, proper blood production and the maintenance of resistance to infections; and also vitamin D, which is necessary for the efficient utilization of calcium. Crookes' Emulsion is readily miscible, is easily digested, and patients claim that it is practically tasteless. It is an admirable preparation for tuberculous patients of all ages, and we have employed it with great satisfaction in many cases. Special attention should be directed to the new combination of CROOKES' EMULSION WITH YEAST EXTRACT. The addition of yeast, one of the most prolific sources of vitamin B, to cod-liver oil, known to be particularly rich in vitamins A and D, would seem to provide a combination likely to give valuable therapeutic results. We have found it very advantageous, particularly in the case of tuberculous and tuberculously disposed children.

RADIOSTOL, a form of irradiated ergosterol, is now supplied in pellet form and provides a stable vitamin D of known activity. It is really ergosterol or provitamin D which has been subjected to ultra-violet irradiation and so converted into effective vitamin D. RADIOSTOLEUM is a preparation of vitamins A and B which, when added to malt extract with a high content of vitamin B, provides RADIO-MALT, an admirable product rich in vitamins A, B, and D. This is really a food which provides just the elements essential for rachitic, tuberculous, and other defective children who have lacked sunlight and been the subjects of vitamin deficiency. The above preparations are made by the British Drug Houses, Ltd.[1]

VIGANTOL is a special brand of irradiated ergosterol.[2] This synthetic vitamin D is the outcome of much research and experimental work in which it has been fairly proved that ergosterin represents the antirachitic provitamin and irradiated ergosterin the antirachitic vitamin. Clinical tests have established the reliability of Vigantol as a therapeutic agent in cases of rickets and other disturbances of bone formation. It will probably prove to be of much value in the treatment of tuberculous and other delicate and malnourished children. The dose of Vigantol for children is from 2 to 4 mg. daily, and it is now available in solution, ovoids, and pellets.

TABLOID IRRADIATED ERGOSTEROL is now available in the convenient compressed form specially associated with the name of Burroughs Wellcome and Co.[3] Ergosterol was first isolated by Tanret from ergot, hence the name. Sterols identical with or of very similar constitution have been obtained from the lower plants. In 1925

[1] On application to the British Drug Houses, Limited, 16-30, Graham Street, City Road, N. 1, descriptive booklets regarding the B.D.H. Vitamin Products can be obtained.

[2] Vigantol is standardized and prepared by I. G. Farbenindustrie, A. G. (Pharmac. Dept., Bayer-Meister Lucius), and E. Merck of Darmstadt, and particulars in this country can be obtained from Bayer Products, Limited, 19, St. Dunstan's Hill, E.C. 3, and H. R. Napp, Limited, 3 and 4, Clement's Inn, W.C. 2.

[3] Particulars regarding "Tabloid" Irradiated Ergosterol can be obtained on application to Burroughs Wellcome and Co., Snow Hill Buildings, E.C. 1.

original research work was carried out by the Medical Research Council with pure ergosterol manufactured and supplied by Burroughs Wellcome and Co. The ultra-violet irradiation of ergosterol results in a substance possessing antirachitic activity of great intensity. Human rickets can be rapidly cured by a daily dose of 2 milligrammes of irradiated ergosterol. This preparation was exhibited by Burroughs Wellcome and Co. at the British Medical Association Meeting at Edinburgh last year, and now as "Tabloid" Irradiated Ergosterol (each containing 0·00015 gm. of the antirachitic substance, vitamin D) can be obtained by all members of the medical profession. Its main clinical use is as a supplement to cod-liver oil, which supplies vitamins A and D, and is therefore ideal in rickets, where there is an increased tendency to respiratory and gastro-intestinal infections due possibly to the general hypovitaminosis, especially of vitamin A. The vitamin D content of one "Tabloid" product of irradiated ergosterol is said to be equivalent to that of one tablespoonful of cod-liver oil.

OSTELIN obtained from the finest cod-liver oil is a valuable vitamin-containing preparation which is now available in several serviceable forms—ostelin vitamin concentrate in liquid form, ostelin with malt extract and orange juice, and ostelin tablets combined with calcinic glycero-phosphate. OSTELIN VITAMIN CREAM is a new palatable emulsion which is likely to be popular, and will be much appreciated as an acceptable preparation for children of all ages.[1]

The firm of Planter's Foods, Limited, the well-known manufacturers of margarine, edible fats, and refined oils, have recently issued a booklet entitled "Margarine and the Vitamin Problem," in which records of experiments are presented showing how by the addition of Essogen, a vitamin concentrate, margarine made from vegetable fats may be rendered as effective a food as those made from milk fats.[2] Margarine—in the Viking, Silver Tray, Welcome, and Gold Chain brands—now contains the same amount of vitamin concentrate rich in vitamins A and D. In hospitals, sanatoria, schools, and the like the supply of vitamins is now realized to be a vital question, and medical advisers and dieticians will be well advised to study the problem as simply but scientifically explained in the above-mentioned booklet.

BEMAX is a new dietetic preparation rich in the natural anti-neuritic vitamin B contained in the embryo of cereals.[3] It is held that many individuals are suffering in consequence of deprivation of vitamin B. Bemax is said to be the detoxicated embryo of barley, wheat, and rye, and is available in a dry form which is palatable and readily digested. It can be taken alone or with porridge or other breakfast foods, added to soup or milk, or sprinkled over tinned and stewed fruits, custard, etc.

AN ANTI-CATARRHAL SPRAY VACCINE is now available as advocated for prophylactic use by Dr. H. Warren Crowe.[4] Besredka and others have suggested that immunity may sometimes be a local affair of tissue

[1] Particulars regarding ostelin preparation can be obtained on application to Ostelin, 56, Osnaburgh Street, N.W. 1.

[2] A copy of "Margarine and the Vitamin Problem" will be sent on application to Planter's Foods, Limited, Brombro Port, Cheshire.

[3] Bemax is supplied by Vitamins, Limited, 12, Pont Street, S.W. 1, from whom particulars and specimens can be obtained.

[4] The distributing agents for Dr. H. Warren Crowe's Anti-Catarrhal Spray Vaccine are Reynolds and Branson, Limited, Leeds.

cells rather than a general phenomenon. If the mucous membrane of the nose and throat could be rendered immune to the invasion of catarral organisms it might well be that infectious colds would be prevented. And so Dr. Crowe's vaccine spray appears worthy of thorough trial. We note that the explanatory circular says: "The Spray should not be used as a substitute for anti-catarrhal prophylactic injections; these should be given as usual at the beginning of the winter season, and together with the Spray will render the patient doubly secure."

FORMOLYPTOL is an elegant non-irritant antiseptic and deodorant preparation providing ready means for the provision of a "mouth bath," which now that pyorrhœa and other forms of oral sepsis are so common is for most people a hygienic necessity.[1] Certainly many tuberculous patients should use some such mouth wash as this. Formolyptol is a combination of formaldehyde (0·2 per cent.), aceto-boro-glyceride (5 per cent.), together with balsamic elements of *Pinus pumilio* eucalyptus, stovax, benzoin, and myrrh.

KOTEX is a new and effective sanitary towel which should be appreciated by patients in hospitals and sanatoria or by women when travelling by road or rail, or otherwise participating in life's activities.[2]

YAGHOURT is a special preparation of milk containing vitamins A, B and C, with *Bacillus bulgaricus* and *B. acidophilus*. It is nutritious, easily digestible and palatable, and is of considerable service in dealing with certain cases of autointoxication and autoinfection arising from a disordered and infective intestinal flora.[3] We believe it will be of much value in the treatment of selected cases of tuberculosis, and particularly where intestinal derangement exists.

"MINTIPS" are a form of sweetmeat which is rapidly becoming popular among children and grown-ups.[4] They are hard, white, smooth, delicious sweets, dissolving slowly in the mouth, and affording a sense of refreshment to mouth and throat. Each "Mintip" is wrapped in waxed tissue paper, and manifestly the strictest hygienic precautions are taken in the process of manufacture. Many consumptive cases will find these pure and wholesome sweets of service in lessening cough and producing a sedative action on mouth and throat.

EATAN is a new nutrient and restorative, which is being used with advantage in tuberculosis and other wasting diseases.[5] It is produced by the hydrolization of animal albumens, blood, connective tissues, bones, joints, blood-forming structures, glands forming internal secretions, and other organs of oxen, thus giving rise to a complex of amino-acids, which are now known to be the ultimate forms in which nutriment is made available for the body. Eatan is a dark-brown liquid, palatable, and tolerated over long periods by the most fastidious patients. It is soluble in water, and can be taken in soup, milk, or other liquids.

[1] Formolyptol is supplied by John Morgan Richards and Sons, Ltd., 46, Holborn Viaduct, E.C. 1.

[2] Particulars regarding Kotex can be obtained from the British agent, Miss Hilda Adams, 23, Eagle Street, W.C 1.

[3] Yaghourt is prepared by the Boudja Manoli Yaghourt Company (1911), 22, Great Chapel Street, Oxford Street, W. 1, from whom a descriptive booklet can be obtained on application.

[4] "Mintips" are distributed by Nestlés, 6, Eastcheap, E.C. 3, in tins at 4 ounces for 6d.

[5] Specimens and particulars regarding Eatan can be obtained on application to Alfred Dehez, Surbiton, Surrey.

SYRUP CRÉOSAL (Dubois) is a French preparation which is finding much favour in this country for the treatment of coughs dependent on tuberculosis and chronic inflammatory affections of the lungs and respiratory passages.[1] It is a palatable and serviceable preparation, compounded with real pharmaceutical skill, of guaiacol, calcium, and phosphoric acid. Each tablespoonful contains 50 centigrammes of créosal.

ASPRO is a British-made tablet of pure acetyl-salicylic acid sent out free from all trace of salicylic acid, and packed in sealed wax paper according to the "Sanitape" system.[2] This insures protection from prejudicial atmospheric conditions and contamination. The manufacturers invite medical practitioners to visit their factory at Slough and to inspect the special plant used in the production of Aspro.

PINHEROIN and PINHEROIN WITH CREASOTE are serviceable forms of linctus in the symptomatic treatment of irritating dry ineffective cough.[3] The first is a palatable combination of diamorphine hydrochloride, terpine hydrate, and extract of Canadian pine. In tuberculosis of the larynx and in certain cases of pulmonary consumption it affords considerable relief. The second preparation is particularly useful in pulmonary tuberculosis, especially when associated with bronchitis and bronchiectasis.

ARTHRITONE and ELIXIR FORMASAL CO. are recently introduced preparations which promise to be of service in the treatment of rheumatoid arthritis, fibrositis, and other so-called "rheumatic" diseases, which oftentimes arise among patients undergoing open-air treatment in the damp and uncertain climate of Great Britain.[4]

[1] Syrup Créosal is supplied in this country by the Anglo-French Drug Company, Ltd., 238A, Gray's Inn Road, W.C. 1, and samples and particulars can be obtained by medical advisers on application.

[2] Aspro is manufactured by Gollin and Co., Slough Trading Estate, Slough, Bucks. Specimens of Aspro can be obtained by medical practitioners on application.

[3] Particulars and specimens of Pinheroin preparation can be obtained on application from the makers, Oppenhemier, Son and Co., Ltd., 179, Queen Victoria Street, E.C. 4.

[4] Particulars regarding Arthritone and Elixir Formasal Co. can be obtained on application to the manufacturers, Hough, Hoseason and Co., Ltd., Manchester.

THE OUTLOOK.

TUBERCULOSIS AND HEALTH EDUCATION.

TUBERCULOSIS is likely to remain a scourge to mankind as long as people continue ignorant regarding the principles of hygiene and neglectful as to practices essential for healthy living. Education in health matters must begin in early life. The Board of Education has recently issued an admirable handbook on Health Education.[1] The work is complementary to the Board's "Handbook of Suggestions for Teachers," and replaces the Syllabus of Hygiene for the Training of Teachers. Sir George Newman in his enlightening and inspiring introduction suggests that there are three principal ways in which health may be both acquired and taught in youth: "(*a*) By habit-training; (*b*) by learning the truths of biology, chemistry, and physics; and (*c*) by understanding the principles and practice of good living itself." This is very true in regard to tuberculosis. The handbook contains a section on the "Fight against Tuberculosis," and so effectively presents essential points in a form which will enable teachers to realize how children may be recruited for service in an anti-tuberculosis campaign that we do not hesitate to reproduce the whole section: "It is possible to interest children keenly, without engendering any morbid feelings, in the great fight against tuberculosis, the white man's plague. They may learn how widely present in Nature is the tubercle bacillus, how it gains entrance into the body through the mouth or nose; in the case of children through drinking infected milk, or putting dirty objects picked up off the floor into the mouth, or by breathing in particles of dust which have been infected by germs coming from a consumptive person. They may learn how important it is to keep their bodies healthy in every possible way in order to resist the development of any germs taken in, and to keep themselves and their surroundings clean. The children will be interested to hear that the germs of tuberculosis are, like other *microbes*, so minute that they cannot be seen with the naked eye; they can only be seen through a microscope. When magnified many times by this means they are seen to be like little rods (hence the name *bacillus*), rather similar to a match cut into many pieces, but so small that thousands placed end to end would only measure an inch in length. The tuberculosis germs may attack any part of the body, but most commonly the lungs, producing what is sometimes called 'consumption.' Hence the importance of the precautions referred to above. Other parts of the body that may be attacked by the germs are the bones (arms, legs, ribs, and spine), the joints (knee, elbow, hip), and the skin. We are all liable to attack by germs, but, fortunately, we have in our bodies a power of defence against the enemy. If we are in good health we shall be successful in this defence, and we call this having good resisting power. If we are in poor health (and poor resistance) we lose the battle. Our resisting

[1] "Handbook of Suggestions on Health Education for the Consideration of Teachers and Others Concerned in the Work of Public Elementary Schools." Pp. 83. London: H.M. Stationery Office. 1928. Price, paper cover, 6d.; cloth, 1s.

power is kept fully up to its work by our leading healthy lives, eating nutritious foods, taking sufficient exercise in the open air, having enough sleep, and avoiding over-strain, worry, and excess of various kinds. Thus it is seen that though we may inhale a few tuberculosis germs they will do no harm unless our bodies have lost their resisting powers; but what is most important to guard against is a 'large dose' (known to the doctors as 'mass infection') of the germ, through sleeping in the same bed or room as a consumptive person, or in other ways coming into contact with tuberculous persons in confined spaces. There is then a danger of so many germs entering our bodies that our power of defence is overcome. There are many weapons that we can use, in addition to keeping the body up to its full resisting strength, to fight tuberculosis infection and prevent both ourselves and others from getting the disease. The most valuable of these weapons is knowledge. The germs of tuberculosis can live in dust for months in dark and dirty places, especially in houses; but the germs soon die if exposed to sunshine, or they can be killed by burning, boiling, or suitable disinfectants. If a pure and tubercle-free milk supply is not available, it is best to boil the milk. Thus, in addition to nourishing food and fresh air and sunshine, good habits and cleanliness are our chief allies. When you cough screen the mouth with a handkerchief, or, failing that, with your hand. Tuberculosis germs may be present in the spit or phlegm, so do not spit. In any case, it is a dirty and objectionable habit. To sum up, the chief and primary means of preventing tuberculosis are fresh air and cleanliness of the hands and body and of our homes."

TUBERCULOSIS SCHEMES.

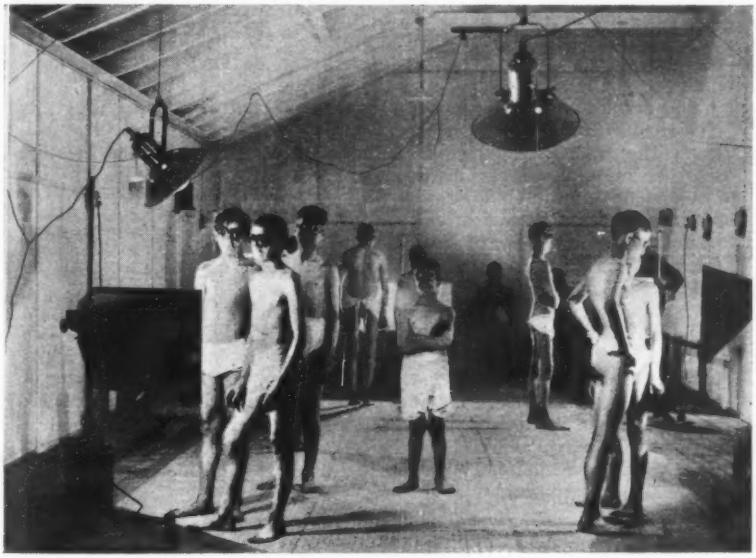
The National Association for the Prevention of Tuberculosis, 1, Gordon Square, W.C. 1, renders an invaluable service by the maintenance of an up-to-date directory relating to the operations of tuberculosis schemes and other activities connected with the campaign against tuberculosis and the treatment of tuberculous cases throughout Great Britain and Ireland. A new and fifth edition has recently been issued,[1] The material is effectively arranged according to administrative areas, and evidently great care has been taken to secure only reliable data from trustworthy sources. An alphabetical grouping makes ready reference possible. In addition to the information supplied in previous editions, important facts are provided regarding care committees and health departments. Data for the Channel Islands are now included. At the conclusion of the Foreword, which serves as an informing introduction, the hope is expressed that the volume will be found helpful by all who are interested in the development and administration of sound anti-tuberculosis measures throughout the country. At the commencement of the work a statement appears indicating that the total number of deaths from tuberculosis in England and Wales for the year 1926 was: Pulmonary tuberculosis, 30,108—*i.e.*, 73 per 100,000 of the population—and other forms of tuberculosis, 7,417—*i.e.*, 21·2 per 100,000 of the population—making a total of deaths from all forms

[1] National Association for the Prevention of Tuberculosis: "Handbook of Tuberculosis Schemes for Great Britain and Ireland." Fifth edition. Pp. viii+358. London: Adlard and Son, Ltd., 21, Hart Street, W.C. 1. 1927. Price 7s. 6d. post free.

of tuberculosis of 37,525—*i.e.*, 94·2 per 100,000 of the population. All who have participated in the production of this indispensable work are to be congratulated.

LIGHT CLINICS

Centres for actinotherapy and the employment of various forms of radiation are being established in all parts of the country, and chiefly in connection with hospitals, clinics, and other stations for the prevention and arrest of disease. An interesting experiment is being carried out in the application of "Artificial Sunlight" to industrial workers by the Sherwood Colliery Company at Mansfield. Dr. Eric Owen has favoured us with notes regarding the Colliery Clinic established in



LIGHT CLINIC FOR MINERS.[1]

This Pit-head Centre has been established in connection with the mines worked by the Sherwood Colliery Company, Mansfield.

December last for the purpose of providing ultra-violet ray light baths for colliers. The miners and pit boys can come twice a week for their "sun-bath." The wives and children of the miners are also allowed to attend providing they are in need of actinotherapy. The local doctors are also permitted to send any of their panel patients considered suit-

[1] We are indebted to the editor and publishers of *Discovery* for the loan of the block "Artificial Sunlight for Miners," which accompanied "Recent Developments in Ultra-Violet Irradiation," by C. A. Cooper, in the February issue of *Discovery*, published monthly by Benn Brothers, Ltd., Bouverie House, 154, Fleet Street, E.C. 4. Price 1s., each number.

able by the Medical Officer. No charge is made. The clinic is very popular and about 600 cases are dealt with weekly. The average number of new cases is about five a day. Consumptive cases are not dealt with, but patients with tuberculous glands and other non-tuberculous lesions are treated and with great advantage.

TUBERCULOSIS AND RESEARCH.

The Annual Report of the Medical Research Council is always of interest and service to those who desire to further the progress of medicine.[1] The new issue contains matter of considerable interest to tuberculosis workers. There are special references to standards in research work, studies of filter-passing viruses, vitamins, and nutritional studies in general. The work relating to tuberculosis is directed by a special committee, of which Dr. A. S. MacNalty is secretary. A description is given of Dr. A. Stanley Griffith's bacteriological and serological studies at the Field Laboratories, Cambridge. Dr. Griffith has given special attention to the claims made for Calmette's immunizing "B.C.G." Vaccine, and the definite statement appears that "The studies which have been made have not confirmed the conclusions of Calmette that susceptible animals can be protected by feeding with 'B.C.G.' against infection with virulent tubercle bacilli." Further immunity experiments upon calves with the "B.C.G." strain have been begun in collaboration with Professor J. B. Buxton, Director of the Institute of Comparative Pathology, at Cambridge. At the laboratory of the King Edward VII. Memorial Association at Cardiff, Professor S. L. Cummins is continuing his studies on the effects of the gold compound "sanocrysin" in the treatment of tuberculosis. As regards tuberculin the statement is made that the double intradermal test for the detection of tuberculosis in dairy cattle is becoming more and more widely adopted, and is progressively replacing the old subcutaneous test. With respect to the use of tuberculin in the treatment of human tuberculosis the following words deserve serious consideration: "If tuberculin administration were so safe and infallible a method of cure as some advocates of it assert, it would by now, as a result of all this work, have definitely established a claim to supersede all other methods of treatment."

NOTES AND RECORDS.

The Ministry of Health has recently issued several communications relating to tuberculosis. Circular 837A is of special interest, as it draws attention to a number of points connected with the treatment of tuberculosis and returns made under Memorandum 37/T.

Regarding the question of the payment of sickness and disablement benefit under the National Health Insurance Act to tuberculosis patients who undertake a certain amount of light work after their discharge from sanatoria, the Ministry of Health have recently pointed out that it is a statutory condition for the receipt of sickness and disablement benefit that the claimant should be rendered incapable of

[1] Committee of the Privy Council for Medical Research: Report of the Medical Research Council for the Year 1926-1927. Pp. 152. London: His Majesty's Stationery Office. 1928. Price 3s.

work, and that it could not be held that a man capable of performing work of a remunerative character satisfies this condition. It was also shown that the question was fully considered by the Royal Commission which recently inquired into the National Health Insurance Scheme.

The recently issued Annual Report of the Cheyne Hospital for Children, Cheyne Walk, Chelsea, S.W. 3, contains an excellent illustration of the Open-air Roof Ward overlooking the Thames, and a reproduction of arc spectra, including that of the Titanium Rays used in the radiological department.

The twenty-first Annual Report of the King Edward VII. Sanatorium at Midhurst has recently been issued, and contains carefully compiled statistical tables and other data relating to the work of the institution. A valuable feature is the collection of tables giving statistics of ultimate results respecting cases since 1908.

The Times of March 26 contained an article on "Artificial Sunlight in the Zoo," in which the following statement appeared: "Wherever ordinary window-glass has been replaced by 'Vitaglass' the health of the inhabitants, whether large carnivores, monkeys, or reptiles, has improved, and there has been no single instance of any disadvantage that can be assigned to the change."

Dr. T. C. Hunter contributed "A Note on the Stannington Sanatorium Vitaglass Pavilion" to the March number of *The British Journal of Actinotherapy.*

Among the excellent "Tyneside Papers" issued by the Bureau of Social Research, and under the directorship of Henry A. Mess, B.A., Ph.D., 18, Ellison Place, Newcastle-upon-Tyne, is a striking communication on "Tuberculosis on Tyneside."

The April issue of *The Prescriber* contains a serviceable article by Dr. E. M. Anderson on "Actinotherapy in Medicine" in which apparatus and technique are dealt with.

An illustrated brochure on "The Carbon Arc in Therapeutics" has been published by the Amalgamated Photographic Manufactures, Ltd.[1]

From the Crookes Laboratories British Colloids, Ltd., 22, Chenies Street, Tottenham Court Road, W.C. 1, has recently been issued an informing and helpful brochure on "The Treatment of Tuberculosis, with Special Reference to Collosol Calcium, Collosol Iodine, Crookes Emulsion, and Collosal Antimony." A copy will be sent to any medical practitioner on application.

A Joint Meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions was held at Oxford, March 29-31. when discussions were held on Lupus and its Treatment, the Potentially Tuberculous Child, the Treatment of Hæmoptysis in Pulmonary Tuberculosis, and Intestinal Tuberculosis.

Under the auspices of the Royal Institute of Public Health, 37, Russell Square, W.C. 1, arrangements have been made for a Whitsuntide medical visit to Paris, Vichy, Aix-les-Bains, the Italian Riviera, and health stations in the Rhone Valley, leaving London May 19. Full particulars may be obtained on application.

An account of the Christmastide visit of Fellows of the Royal Institute of Public Health and others to the chief Tuberculosis Health

[1] A copy of "The Carbon Arc in Therapeutics" will be sent to any medical actinotherapist on application to Amalgamated Photographic Manufactures, Ltd., Soho Square, W. 1.

Stations and Sanatoria of Switzerland appears in the March issue of the *Journal of State Medicine*. It is proposed to organize a second visit to Swiss centres next December, and those desiring to participate should take early steps to intimate their intentions to the Hon. Secretaries of the Royal Institute of Public Health, 37, Russell Square, W.C. 1.

An International Congress on Social Work and Service (Congrès International d'Assistance Publique et Privée) is to be held in Paris in July, 1928. Particulars may be obtained on application to the Rev. J. C. Pringle, Secretary Charity Organization Society, Denison House, 296, Vauxhall Bridge Road, S.W. 1.

In connection with the forthcoming Ninety-sixth Annual Meeting of the British Medical Association at Cardiff, July 24-28, there will be a section on tuberculosis, of which the president is Dr. Hugh Morriston Davies and the vice-presidents, Dr. Alexander Brownlee, Dr. Dan Arthur Powell, and Dr. Cecil Wall. The hon. secretaries are Dr. J. C. Gilchrist and Dr. J. C. Hoyle.

In connection with the forthcoming Dublin Congress of the Royal Institute of Public Health, August 15-20, there will be a tuberculosis section, the presidents of which are Sir William Thompson and Dr. P. C. Varrier-Jones.

The Sixth Conference of the International Union against Tuberculosis will be held in Rome, September 25-27. The following are the chief subjects for discussion: (1) Biological: Filterable Elements of the Tubercle Virus. (2) Clinical: The Diagnosis of Infantile Tuberculosis. (3) Social: The Organization of Tuberculosis Prophylaxis in Rural Districts. Arrangements are being made for other conferences. The Italian delegate, Professor Archangelo Ilvento, is making arrangements for excursions and study tours. It is expected that visitors will attend from many countries: Canada is sending thirty delegates. Those wishing to attend should communicate with the Secretary, National Association for Prevention of Tuberculosis, 1, Gordon Square, W.C. 1, from whom full particulars can be obtained.

The Fifth International Medical Congress of Industrial Accidents and Occupational Diseases will be held at Budapest, Hungary, September 2-8. Particulars from the Secretary-General, Dr. George Gortvay, VI. Eötvös Utca 3, Budapest.

The University of Strasbourg is holding a course in Tuberculosis October 8-25. Particulars on application to Dr. Vaucher, Quai Funkwille, Strasbourg.

Under the auspices of the *British Journal of Actinotherapy*, published monthly by the Actinic Press, Ltd., 17, Featherstone Buildings, High Holborn, W.C. 1, the Second International Conference and Exhibition on "Light and Heat in Medicine and Surgery" will be held October 29 to November 1 at the University of London, Exhibition Road, London, S.W. 7. The exhibition of apparatus and accessories which was held in connection with the 1927 Conference proved of such interest that a similar exhibition will be arranged this year.